SONY®

DIGITAL CAMCORDER

DSR-300
DSR-300P

INDEX PICTURE BOARD

DSBK-301

CAMERA ADAPTOR

CA-WR855

SERVICE MANUAL

Vol. 1 (1st Edition)

Power HAD

DVCAM

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

X-RAY RADIATION WARNING

Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer’s instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d’explosion s’il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d’un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS

Paristo voi räjähtää jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

MANUAL STRUCTURE

Introducing this manual

This manual is the Service Manual Vol. 1 of the digital camcorder DSR-300/300P, the index picture board DSBK-301 and the camera adaptor CA-WR855.
This manual contains the operation manual related to the operations of this equipment, the replacement of the parts and adjustments.

Related manuals

In addition to this Service Manual Vol. 1, the following manuals are provided.

- **Service Manual Vol. 2**
  Part No. 9-977-332-21
  Contains block diagrams, board layouts, schematic diagrams, semiconductor pin assingments and parts lists.

- **Service Manual DXF-701/701CE/701WS/701WSCE**
  Part No. 9-977-265-02
  See the DXF-701/701CE/701WS/701WSCE service manual available separately.

- **Service Manual VCT-U14**
  Part No. 9-977-221-01
  See the VCT-U14 service manual available separately.

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gM

SECTION 1
OPERATING INSTRUCTIONS

This section is extracted
from operation manual.

1-1. DSR-300/300P

SONY

3-861-961-**11**(1)

Digital Camcorder

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Power HAD

DVCAM

DSR-300F/300PF
DSR-300K/300PK
DSR-300L/300PL

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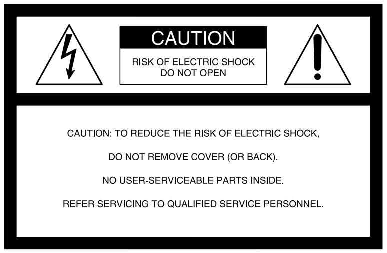
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

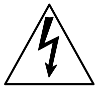
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Owner's Record

The model and serial numbers are located on the top. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No.____________ Serial No.____________

LITHIUM BATTERY
Replace the battery with a Sony CR2032 lithium battery. Use of another battery may present a risk of fire or explosion.

WARNING
Battery may explode if mistreated.
Do not recharge, disassemble or dispose of in fire.

Note
Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til laverandøren.

ADVARSEL
Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS
Paristo voi räjähtää jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

For customers in the USA
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

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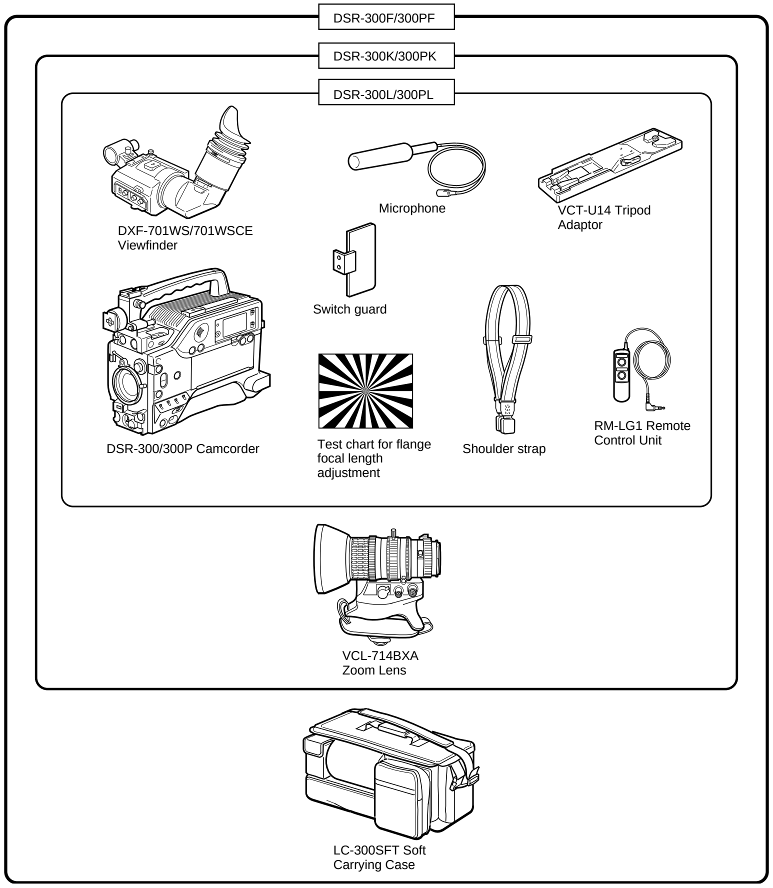
Product Configurations

The six models, DSR-300F, DSR-300K, DSR-300L, DSR-300PF, DSR-300PK and DSR-300PL, comprise both NTSC and PAL versions and the components as shown in the figure below. The operation of the basic camcorder is the same in all cases.


DSR-300F/300PF
DSR-300K/300PK
DSR-300L/300PL
DXF-701WS/701WSCE Viewfinder
Microphone
VCT-U14 Tripod Adaptor
Switch guard
DSR-300/300P Camcorder
Test chart for flange focal length adjustment
Shoulder strap
RM-LG1 Remote Control Unit
VCL-714BXA Zoom Lens
LC-300SFT Soft Carrying Case

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Features

Features on Camera Section

$^1/_2$-inch IT type Power HAD CCD

The DSR-300/300P Digital Camcorder uses $^1/_2$-inch IT type Power HAD CCDs. It excels in reduction of smear, sensitivity and picture quality.

- Smear: –110 dB
- Sensitivity: F11.0 (at 3200 K, 2000 lux)
- S/N: 62 dB (DSR-300) or 60 dB (DSR-300P)

Sophisticated image processing

TruEye™ processing makes possible the following performance features. This digital signal processing has brought reproduction of natural colors to the level achieved by the human eye.

DynaLatitude™
Enables detailed adjustment of contrast control in each pixel in accordance with a histogram of luminance signal levels.

DCC+ (dynamic contrast control plus)
Prevents white breakup when shooting a high intensity subject, and also prevents color faults in high intensity subject.

Black stretch and compress
Enables control of luminance signal levels in black areas without changing the hue.

Variety of detail corrections

- Skin detail function: this function gives a slightly softer appearance to the subject's face. The target skin color can be automatically set.
- Black halo correction
- Red/green vertical detail correction: this function performs vertical detail compensation for both red and green signals.
- Horizontal detail frequency control

New Functions boost operability

EZ (easy) mode function
When there isn't time to check the camcorder settings, simply press the EZ mode button to start the auto adjustment function using standard settings. There is no need to lose a shot for lack of setup time.

EZ (easy) focus
Press the EZ focus button before shooting to ensure a quick and accurate focus.

Dual pixel readout (DPR[1])
When the gain is set to either 18 dB or 24 dB, the gain setting can be doubled (6 dB up) without increasing the noise level.

Programmable gain
The amount of gain relative to the GAIN switch setting (H, M, or L) can be programmed as –3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 18 dB, 18 dB+DPR, 24 dB, 24 dB+DPR and hyper gain.

Hyper gain
Hyper gain (36 dB (=30 dB+DPR), or about 60 times greater than 0 dB) can be easily set via one switch setting. This can also be done from remote equipment.

Auto tracing white balance (ATW)
This function automatically traces the white balance, which constantly changes as lighting conditions change. Auto tracing white balance is especially useful when there is no time to manually adjust the white balance or when shooting moves between indoor and outdoor locations.

Total level control system (TLCS)
Even if the incoming light exceeds the range in which the standard auto iris can control exposure, the auto gain control (AGC) or auto exposure (AE) backs up to ensure proper exposure.

Recording time (REC TIME) display
Recording time can be displayed in either of the following modes.

- Total recording time for all cuts (TTL[2])
- Total recording time for current cut (DUR[3])

---

[1] DPR = Dual Pixel Readout
[2] TTL = Total
[3] DUR = Duration

Viewfinder super detail
Video signals for the viewfinder are mixed with DTL signals to make focusing easier.

Dual zebra pattern display
Two types of zebra patterns, zebra 1 and zebra 2 can be displayed simultaneously or independently. The zebra 1 can be set to the levels ranging from 70 to 90 IRE on the DSR-300 (or from 70 to 90% on the DSR-300P) and the zebra 2 indicates the levels of 100 IRE or more for the DSR-300 (or the levels of 100% or more for the DSR-300P).

Color temperature display
When reading the white balance, the color temperature is displayed on the viewfinder screen.

Switching the color temperatures for the preset white balance
You can select the preset white balance at 3200 K or 5600 K by setting the FILTER control. The 3200 K preset can be switched to the 3000 K preset when the menu setting is changed.

Video monitor output with text
The video signal with text superimposed that is shown in the viewfinder can also be output to an external video monitor.

1-kHz reference signal output
Along with a color bar, a 1-kHz reference signal can also be output.

Freeze mix function
The freeze mix function superimposes any previously recorded still picture on the viewfinder screen to facilitate framing the subject when reshooting the scene.

Edit Search Function
Pressing the EDIT SEARCH buttons allows the tape to play back in search mode. Set either of two playback speeds.

SetupLog™ function
Settings at shooting are recorded onto the tape in real time. This recorded data can then be used to reproduce the same shooting conditions in subsequent shots. It also makes it easier to identify the cause of problems in previous shots.

Video light control
A video light connector and control switch are equipped. You can turn the light on and off automatically as you start and stop VCR operation.

High-performance viewfinder (DXF-701WS/701WSCE)

- High resolution (600 TV lines of horizontal resolution)
- Large-diameter eye cup for easier viewing and focusing
- PEAKING potentiometer for vertical and horizontal detail control
- Two indicators can be used as TALLY indicators
- Tough die-cast aluminum body

Features on VCR Section

The DSR-300/300P uses the DVCAM recording format. The internal signal processing is digitalized to provide more stable output signals and higher reliability.

Compatible with consumer DV

A DV cassette recorded on a DV-format VCR can be played back on the DSR-300/300P. (Cassettes recorded in LP mode cannot be played back.)

DVCAM cassettes

- The DSR-300/300P can use both standard-size and mini-size DVCAM cassettes. According to cassette size, the DSR-300/300P automatically corrects reel position.
- The maximum recording/playback times are 184 minutes for standard size cassettes and 40 minutes for mini cassettes.
- DVCAM cassettes include a cassette memory. Information about the editing points (ClipLink™ log data) that is specified while shooting is recorded into this cassette memory.

Features

ClipLink™ function

The ClipLink function links all stages from shooting to editing. Once editing points have been set with this function during shooting, they can be used to boost the efficiency of editing work.

Creation of clips
Using the ClipLink function, the camcorder operator can create clips to be used during editing.
The images captured at the Mark IN points are recorded in a compressed format onto the tape as "Index Pictures"[1]. In addition, editing point-related data (scene number, time code for Mark IN/OUT points, etc.) is recorded in the cassette memory.

ClipLink mode
To use the ClipLink function, select the menu setting to set the DSR-300/300P into ClipLink mode. There is also a ClipLink continue function that enables clips to be continued even after a break in recording.

PCM digital audio

Recording/playback can be set to audio lock mode. Selectable between two-channel recording (with a sampling frequency of 48 kHz) mode or four-channel recording (with a sampling frequency of 32 kHz) mode (CH-1 and CH-2 only).

Equipped with audio output connectors

During recording or playback, audio output can be monitored via a built-in speaker, a connected earphone or via (two-channel) audio output connectors.

Color playback

Connect an external video monitor for color playback (playback adaptor not required). The DSR-300/300P is equipped with two video monitor connectors: one for composite video output and the other for S-video output.

VCR data display

The DSR-300/300P is able to display the following data on the viewfinder screen.
- Time values (counter, time code, or user bit values)
- Audio recording levels
- Remaining tape time
- Operation mode of the VCR section
- Remaining battery capacity
- ClipLink information

Recording on external VCRs

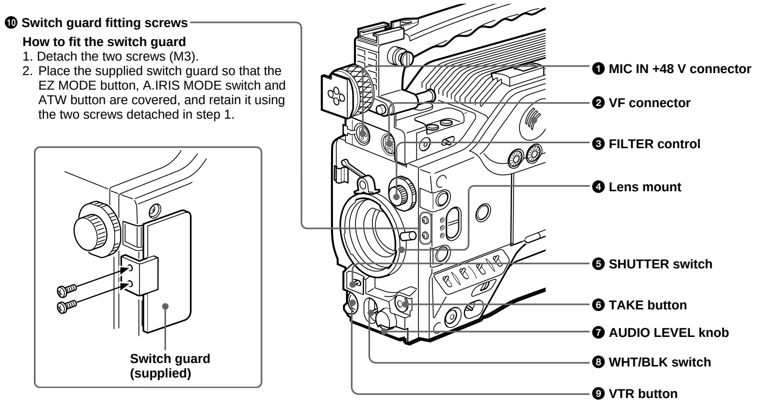
Betacam or S-VHS VCRs can be connected to the VTR connector (26-pin) on the rear panel.

---

[1] It is necessary to fit the optional DSBK-301 Index Picture Board.

Location and Function of Parts

Front View



How to fit the switch guard
1. Detach the two screws (M3).
2. Place the supplied switch guard so that the EZ MODE button, A.IRIS MODE switch and ATW button are covered, and retain it using the two screws detached in step 1.

❶ MIC (microphone) IN +48 V connector (XLR 3-pin, female)
Connect the supplied microphone or an optional microphone (operable with a 48 V supply).

❷ VF (viewfinder) connector (20-pin)
This is the connector for the DXF-701WS/701WSCE viewfinder.

❸ FILTER control
Select the color temperature conversion filter appropriate to the lighting conditions. *(See page 47.)*

❹ Lens mount
Attach the zoom lens here.

❺ SHUTTER switch
Use this switch to set the shutter speed, CLS (clear scan), or EVS setting *(see page 104)*. Usually, set this switch to OFF.

❻ TAKE button
Press this button to specify an editing point (Mark IN/OUT or Cue point) at the current tape position during shooting. *(See page 67.)*

❼ AUDIO LEVEL knob
You can use this knob to manually adjust the channel 1 audio recording level.

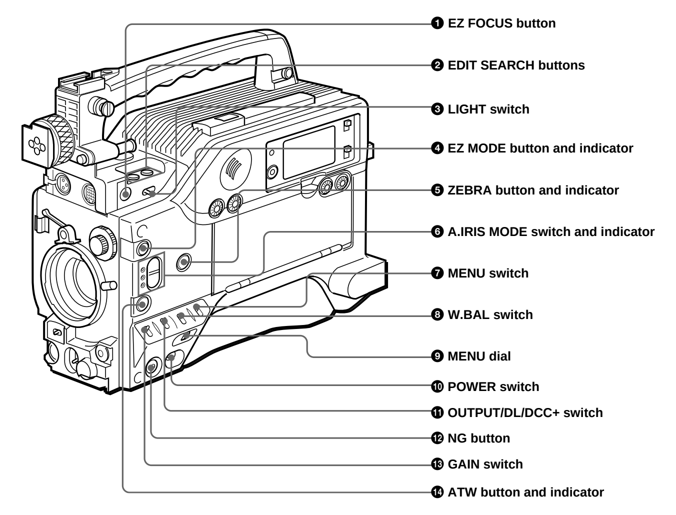
❽ WHT/BLK (white/black) switch
This switch is used for automatic adjustment of the white balance and black balance. *(See pages 100 to 103.)*

❾ VTR button
Pressing this button starts and stops recording on the VCR.

❿ Switch guard fitting screws
If you will not use the EZ MODE button (❹ *on page 13)*, A.IRIS MODE switch (❻ *on page 13)* and ATW button (⓮ *on page 13)*, fit the supplied switch guard to avoid miss-operation of them.

Right Side View

Front section



❶ EZ FOCUS button
Press this button to turn the "easy focus" function on. This opens the iris, to make it easier to focus before beginning shooting. The indication "EZ FOCUS" appears in the viewfinder while the function is on; to turn it off, press the EZ FOCUS button again. If left on, the function automatically turns off after about ten seconds.

Note

If the "easy focus" function is still on when you press the VTR button, it turns off automatically and recording starts about one second later.

❷ EDIT SEARCH buttons
You can see the search playback while pressing either of these buttons at recording pause mode to quickly find the next recording start point. Two playback speeds are available, and press either of the buttons to the inner position to increase the speed.

❸ LIGHT (video light) switch
Controls the video light connected as follows.

AUTO: turns on the video light at recording if the power switch on the light is set on.

MAN (manual): allows the power switch on the video light to turn the light on and off.

❹ EZ ("easy") MODE button and indicator
Press this button (EZ mode on) when you want to be able to shoot immediately, with automatic adjustment of the camcorder settings to standard values. *(See page 88 for EZ mode setting.)* When this function is used, the iris and the white balance are adjusted automatically. (The total level control system functions.) Press this button again to return the camcorder to the previous settings (EZ mode off).

Note

When the RM-M7G Remote Control Unit is connected, the "easy mode" function is disabled.

❺ ZEBRA button and indicator
Depress this button to display a zebra pattern (diagonal stripes) in the viewfinder.
Depending on the zebra setting in advanced menu page 4 *(see page 86)*, the zebra 1 for video levels between 70 to 90 IRE (or 70 to 90%) and the zebra 2 for video levels 100 IRE or more (or 100% or more) can be displayed independently or simultaneously.

❻ A.IRIS (auto iris) MODE switch and indicator
When you use the auto iris function (by setting the iris selector on the lens to A), set this switch to suit the shooting conditions. Selecting BACK L gives more light to back-lit subjects, and selecting SPOT L adjusts for high contrast in spot-lit subjects. For normal shooting, set this switch to STD.

❼ MENU switch
When you press this switch to the ON position, the basic menu is displayed. Keep pressing it to the ON position to cycle through the various menu displays. When you press the switch to the STATUS position, the camcorder's status (of current settings) is displayed.

❽ W. BAL (white balance) switch
This selects the white balance setting from the preset value, the value in memory A or the value in memory B. *(See page 100.)* You can select the preset white balance at 3200 K or 5600 K using the FILTER control (❸ *on page 11).* If you select the 3200 K preset, it can be switched to the 3000 K preset in advanced menu page 3 *(see page 85).*

❾ MENU dial
Use this dial to change menu pages or settings.

❿ POWER switch
Powers the camcorder on or off.

⓫ OUTPUT/DL/DCC+ (DynaLatitude/dynamic contrast control plus) switch
Use this switch to select the DCC+ function, the DynaLatitude function, or color bar output.
Select the CAM/DCC+ position in most cases.

CAM/DCC+: This activates the DCC+ function. This prevents color faults when shooting high-intensity subjects.

CAM/DL: This setting uses the DynaLatitude function, which finely adjusts the contrast of each pixel according to a histogram of luminance signal levels. Access advanced menu page 2 to set the DynaLatitude function ON or OFF. The DynaLatitude effect can be set to any of three levels, Low, STD (standard), and High with basic menu page 2.

BARS: This setting displays color bars.

For details of menu operation, see Chapter 4 "Viewfinder Screen Displays and Menus".

⓬ NG button
When using the ClipLink function during shooting, you can designate a particular scene as "NG" (No Good) by pressing this button before shooting the next scene. Press the button again to cancel the NG setting.

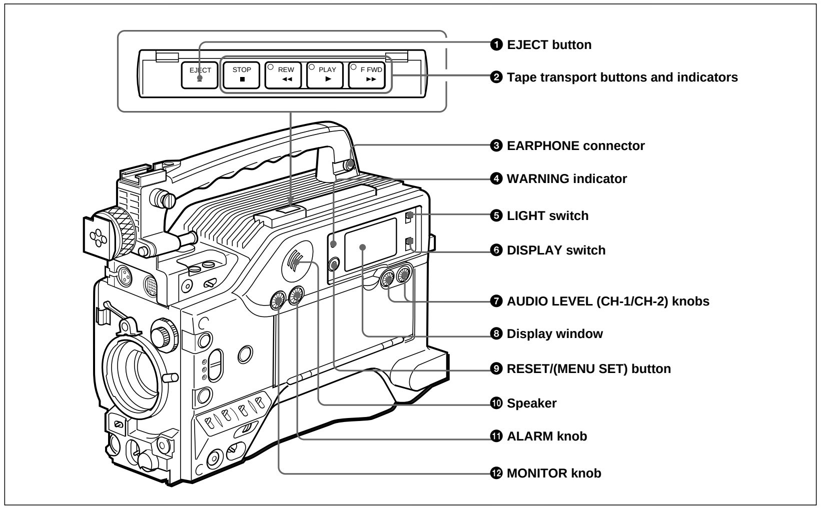
⓭ GAIN switch
This selects one of the three gain settings, high, medium or low. You can choose the gain values assigned to the H, M and L settings from values from –3 dB to 24 dB + DPR and hyper gain. *(See page 85.)* The factory default selections are 18 dB (H), 9 dB (M) and 0 dB (L).

Note

When the HYPER GAIN switch (❼ *on page 21)* is in the ON position, the GAIN switch has no effect.

⓮ ATW (auto tracing white balance) button and indicator
Press this button, turning the indicator on, when you want the white balance to be adjusted automatically to follow changes in lighting conditions. *(See page 102.)*

Rear section



EJECT
STOP
REW
PLAY
F FWD
❶ EJECT button
❷ Tape transport buttons and indicators
❸ EARPHONE connector
❹ WARNING indicator
❺ LIGHT switch
❻ DISPLAY switch
❼ AUDIO LEVEL (CH-1/CH-2) knobs
❽ Display window
❾ RESET/(MENU SET) button
❿ Speaker
⓫ ALARM knob
⓬ MONITOR knob

❶ EJECT ⏏ button

Press to open the cassette holder (*❶ on page 23)* when the camcorder is powered.

❷ Tape transport buttons and indicators

These buttons transport the tape as shown below.

Note

During recording, none of these buttons operates.

Buttons	Operation
REW ◀◀	Rewinds the tape. The indicator lights while the tape is being rewound. Press while the tape is being rewound or during playback to view reverse search playback.
F FWD ▶▶	Fast forwards the tape. The indicator lights while the tape is being fast forwarded. Press while the tape is being fast forwarded or during playback to view forward search playback.
PLAY ▶	Plays back the recorded video. The indicator lights during playback.
STOP ■	Stops the tape.

❸ EARPHONE connector (mini-jack)

Connect an earphone or headphones. This outputs the sound which was output to the speaker (*❿ on page 17)*, but mutes the speaker.

❹ WARNING indicator

This lights or blinks when an abnormality occurs.

For details, see "Warning System" on page 115.

❺ LIGHT switch

This switches the display window (*❽ on page 15)* light on or off.

❻ DISPLAY switch

Switches time value indication shown in the display window (*❽ on page 15)*.

COUNTER: Shows the tape transport time in HH:MM:SS (hours, minutes and seconds).

TC: Shows the time code value.

U-BIT: Shows the user bit data in the time code.

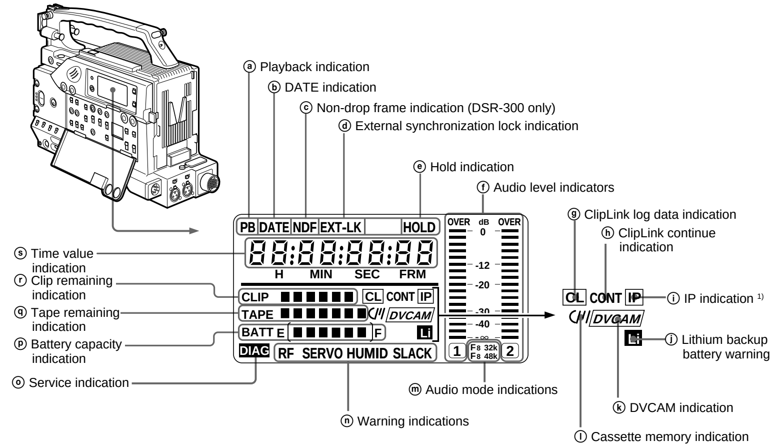
❼ AUDIO LEVEL (CH-1/CH-2) (audio recording level adjustments for channels 1 and 2) knobs

When the AUDIO SELECT (CH-1/CH-2) switches (*❹ on page 19)* are set to MANUAL, these knobs adjust the audio levels being recorded on channels 1 and 2.

The audio levels are indicated in the display window ❽. For details, see "❽ Display window".

❽ Display window

Shows the following items. Use the LIGHT switch (*❺ on page 14)* to light up the display window.



ⓐ Playback indication
ⓑ DATE indication
ⓒ Non-drop frame indication (DSR-300 only)
ⓓ External synchronization lock indication
ⓔ Hold indication
ⓕ Audio level indicators
ⓖ ClipLink log data indication
ⓗ ClipLink continue indication
ⓘ IP indication 1)
ⓙ Lithium backup battery warning
ⓚ DVCAM indication
ⓛ Cassette memory indication
ⓜ Audio mode indications
ⓝ Warning indications
ⓞ Service indication
ⓟ Battery capacity indication
ⓠ Tape remaining indication
ⓡ Clip remaining indication
ⓢ Time value indication
PB DATE NDF EXT-LK HOLD
88:88:88:88
H MIN SEC FRM
CLIP
CL CONT IP
TAPE
DVCAM
BATT E F
Li
DIAG
RF SERVO HUMID SLACK
OVER dB OVER
0
-12
-20
-30
-40
1
Fs 32k
Fs 48k
2

1) When the optional DSBK-301 is fitted

Indications in the display window

Indication	Description
ⓐ Playback indication	Appears during playback, fast forward or rewind with the time data display showing a time code or user bit value.
ⓑ DATE indication	Appears when the date or time is displayed in the time value indication ⓢ area.
ⓒ Non drop-frame indication (DSR-300 only)	Appears when non-drop frame mode is selected.
ⓓ External synchronization indication	Appears when the internal time code generator is locked to an external signal input to the TC IN connector (❸ on page 23).
ⓔ Hold indication	Appears when the internal time code generator is stopped.
ⓕ Audio level indicators	These show the audio recording or playback levels of channel 1 and channel 2.
ⓖ ClipLink log data indication	Appears when using a cassette with cassette memory containing ClipLink log data.
ⓗ ClipLink continue indication	Appears when back space editing using ClipLink function is possible.
ⓘ IP(Index Picture) indication	Appears when the ClipLink function is set to on in the VCR menu and Index Picture recording is allowed. (The optional DSBK-301 is required.)

(Continued)

Location and Function of Parts

<table>
<tr><td>ⓙ Lithium backup battery warning</td><td>Appears when the voltage of the internal lithium backup battery (CR2032) is low. If this indication appears, replace the lithium backup battery immediately.

<i>For further information about replacing lithium battery, see “Inserting and Replacing the Lithium Battery” (page 31).</i></td></tr>
<tr><td>ⓚ DVCAM indication</td><td>Disappears when the cassette being played back is not for DVCAM format.</td></tr>
<tr><td>ⓛ Cassette memory indication</td><td>Appears when using a cassette with cassette memory.</td></tr>
<tr><td>ⓜ Audio mode indications</td><td>These show audio recording/playback mode.
Fs32k: 4-channel mode (32kHz sampling frequency)
Fs48k: 2-channel mode (48kHz sampling frequency)

<i>For further information about selecting audio recording mode, see “Selecting Audio Recording Mode —Menu 212” (page 97).</i></td></tr>
<tr><td>ⓝ Warning indications</td><td>Include the following.
RF: Appears when the video heads are clogged, or when there is a fault in the recording system.
SERVO: Appears when the servo lock is not functioning.
HUMID: Appears when there is condensation on the drum.
SLACK: Appears when there is a tape winding fault.

<i>For measures against warning indications, see “Warning System” (page 115).</i></td></tr>
<tr><td>ⓞ Service indication</td><td>Appears during maintenance on VCR menu operations (page 92). It does not appear during normal operation.</td></tr>
<tr><td>ⓟ Battery capacity indication</td><td>This indicates the battery capacity and voltage as shown below.
Change menu setting for the battery you are using.

<i>For menu settings, see “Selecting Battery Capacity Indication —Menu 206” (page 94).</i>
<table>
<tr><th></th><th colspan="2">Battery voltage</th></tr>
<tr><th>Indication</th><th>BP-L40/L60/L60A/ L90/L90A</th><th>NP-1B/BP-90A</th></tr>
<tr><td>BATT E[■■■■■■]F</td><td>15.0 V or more</td><td>12.5 V or more</td></tr>
<tr><td>BATT E[■■■■■]F</td><td>14.0 to 15.0 V</td><td>12.0 to 12.5 V</td></tr>
<tr><td>BATT E[■■■■]F</td><td>13.0 to 14.0 V</td><td>11.75 to 12.0 V</td></tr>
<tr><td>BATT E[■■■]F</td><td>12.0 to 13.0 V</td><td>11.5 to 11.75 V</td></tr>
<tr><td>BATT E[■■]F</td><td>11.3 to 12.0 V</td><td>11.3 to 11.5 V</td></tr>
<tr><td>BATT E[■■]F (blinking)1)</td><td>11.25 to 11.3 V</td><td>11.25 to 11.3 V</td></tr>
<tr><td>BATT E[■]F (blinking)</td><td>11.0 to 11.25 V</td><td>11.0 to 11.25 V</td></tr>
<tr><td>BATT E[ ]F (blinking)</td><td>11.0 V or less</td><td>11.0 V or less</td></tr>
</table>
1)Replace the battery pack when this indication appears.</td></tr>
</table>

(Continued)

<table>
<tr><td>ⓠ Tape remaining indication</td><td>During recording or pause mode, this indication shows the remaining tape time as shown below. It is not displayed when no cassette is loaded.
<table>
<tr><th>Indication</th><th>Tape time remaining</th></tr>
<tr><td>TAPE■■■■■■■</td><td>30 minutes or more</td></tr>
<tr><td>TAPE■■■■■■</td><td>25 to 30 minutes</td></tr>
<tr><td>TAPE■■■■■</td><td>20 to 25 minutes</td></tr>
<tr><td>TAPE■■■■</td><td>15 to 20 minutes</td></tr>
<tr><td>TAPE■■■</td><td>10 to 15 minutes</td></tr>
<tr><td>TAPE■■</td><td>5 to 10 minutes</td></tr>
<tr><td>TAPE■</td><td>2 to 5 minutes</td></tr>
<tr><td>TAPE■ (blinking)</td><td>0 to 2 minutes</td></tr>
<tr><td>TAPE (blinking)</td><td>End of tape</td></tr>
</table></td></tr>
<tr><td>ⓡ Clip remaining indication</td><td>This shows how many clip shots or Cue points can be recorded1).
<table>
<tr><th>Indication</th><th>Clip shots</th><th>Cue point</th></tr>
<tr><td>CLIP■■■■■■</td><td>51 or more</td><td>101 points or more</td></tr>
<tr><td>CLIP■■■■■</td><td>41 to 50</td><td>81 to 100 points</td></tr>
<tr><td>CLIP■■■■</td><td>31 to 40</td><td>61 to 80 points</td></tr>
<tr><td>CLIP■■■</td><td>21 to 30</td><td>41 to 60 points</td></tr>
<tr><td>CLIP■■</td><td>11 to 20</td><td>21 to 40 points</td></tr>
<tr><td>CLIP■</td><td>1 to 10</td><td>1 to 20 points</td></tr>
<tr><td>CLIP■ (blinking) 2)</td><td>1 to 3</td><td>1 to 6 points</td></tr>
<tr><td>CLIP</td><td>Cannot record</td><td></td></tr>
<tr><td>CLIP (blinking) 2)</td><td>Cannot record</td><td></td></tr>
</table>
1) The optional DSBK-301 is required for Index Picture recording.
2) When back space editing using ClipLink function is possible (when CONT is displayed)</td></tr>
<tr><td>ⓢ Time value indication</td><td>Depending on the DISPLAY switch (❻ on page 14) setting, this shows a counter value, time code value or user bit value. Press the MENU button (❶ on page 18) to display the VCR menu.</td></tr>
</table>

❾ RESET/(MENU SET) (counter reset/VCR menu) button

Resets the time value shown in the display window. This button operates differently depending on settings of the DISPLAY switch (❻ *on page 14)* and the TC mode switch 1 (❾ *on page 19)* and 2 (❽ *on page 19).*

Switch setting	RESET button operation
DISPLAY: COUNTER	Resets counter value to 0:00:00.
DISPLAY: TC TC mode switch 1: PRESET TC mode switch 2: SET	Resets time code to 00:00:00:00.
DISPLAY: U-BIT TC mode switch 1: PRESET TC mode switch 2: SET	Resets user bit a) to 00 00 00 00.

a) Bits of time code recorded on tape, in which users can record necessary information.

Also, this button is used to change menu settings.

For details on the VCR menu, see “Setting on the VCR Section —VCR Menu” (page 91).

❿ Speaker

Outputs the recorded or playback audio. When a warning indicator appears in the viewfinder or display window, the speaker sounds a warning tone.
The speaker is muted (does not output a warning tone) when an earphone is connected to the EARPHONE connector (❸ *on page 14).*

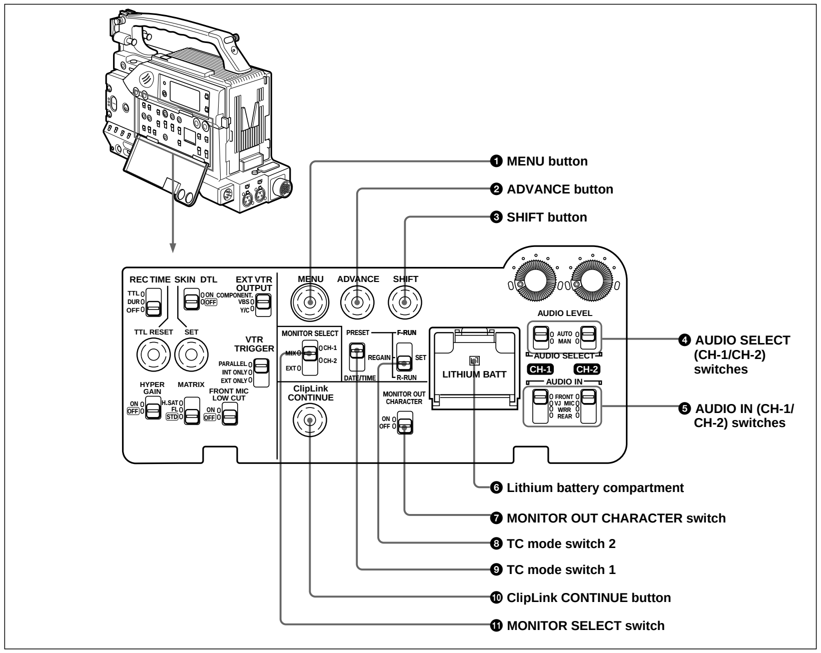
For details on the warning tone, see “Warning System” (page 115).

⓫ ALARM (alarm tone volume adjustment) knob
Controls the volume of the warning tone that is output via the speaker (❿ *on page 17)* or earphone (❸ *on page 14)*. Turning this knob to the minimum setting mutes the alarm tone.

⓬ MONITOR (monitor volume adjustment) knob
Controls the volume of the sound other than the warning tone that is output via the speaker (❿ *on page 17)* or earphone (❸ *on page 14)*. Turning this knob to the minimum setting mutes the audio output.

Operation panel under the cover

Right side


❶ MENU button
❷ ADVANCE button
❸ SHIFT button
REC TIME
TTL
DUR
OFF
SKIN
DTL
ON
OFF
EXT VTR OUTPUT
COMPONENT.
VBS
Y/C
MENU
ADVANCE
SHIFT
TTL RESET
SET
VTR TRIGGER
PARALLEL
INT ONLY
EXT ONLY
HYPER GAIN
ON
OFF
MATRIX
H.SAT
FL
STD
FRONT MIC LOW CUT
ON
OFF
MONITOR SELECT
MIX
EXT
CH-1
CH-2
PRESET
F-RUN
REGAIN
SET
DATE/TIME
R-RUN
ClipLink CONTINUE
MONITOR OUT CHARACTER
ON
OFF
LITHIUM BATT
AUDIO LEVEL
AUTO
MAN
AUDIO SELECT
CH-1
CH-2
AUDIO IN
FRONT
VJ MIC
WRR
REAR
❹ AUDIO SELECT (CH-1/CH-2) switches
❺ AUDIO IN (CH-1/CH-2) switches
❻ Lithium battery compartment
❼ MONITOR OUT CHARACTER switch
❽ TC mode switch 2
❾ TC mode switch 1
❿ ClipLink CONTINUE button
⓫ MONITOR SELECT switch

❶ MENU button
Press this button to display the VCR menu in the display window.

For details about the VCR menu, see "Setting on the VCR Section —VCR Menu" (page 91).

❷ ADVANCE button
When setting time code and user bit values, or at menu setting, press this button to increment the digit that has been selected with the SHIFT button (❸ *on page 19)*. In other case, keep pressing this button to show the clip remaining indication instead of time value. (Example: `CLIP 045`)

For time code and user bit settings, see page 59.

On how to use the ADVANCE button for menu settings, see "Setting on the VCR Section —VCR Menu" (page 91).

❸ SHIFT button
When setting time code and user bit values, or at menu setting, keep pressing this button to select a digit. The selected digit will start blinking.
In other case, keep pressing this button to show the date (when the DISPLAY switch (❻ *on page 14)* is set to U-BIT) and time (when the DISPLAY switch is set to TC) instead of time value.

For time code and user bit settings, see page 59.

On how to use the SHIFT button for menu settings, see "Setting on the VCR Section —VCR Menu" (page 91).

❹ AUDIO SELECT (CH-1/CH-2) (audio recording level adjustments manual/auto selection for channels 1 and 2) switches
These select the audio recording level adjustment method.

AUTO: Use the AGC (automatic gain control) circuit to automatically adjust the audio level.

MANUAL: Enables users to manually adjust the AUDIO LEVEL (CH-1/CH-2) knobs (❼ *on page 15)* for each channel. Select AUTO if excess input levels are likely to occur.

❺ AUDIO IN (CH-1/CH-2) (audio input selection for channels 1 and 2) switches
These select the input signals to channels 1 and 2.

FRONT: Signals from the microphone connected to the MIC IN +48 V connector.

VJ MIC: Signals from the remote control unit with microphone connected to the REMOTE connector 2

WRR: Signals from the WRR-855A synthesized tuner connected to the WRR connector via the CA-WR855 Camera Adaptor.

MANUAL: Signals from a microphone or external equipment connected to the AUDIO IN (CH-1/CH-2) connectors.

❻ Lithium battery compartment
Insert the supplied CR2032 Lithium Battery.

On how to fit the lithium battery, see page 31.

❼ MONITOR OUT (monitor output) CHARACTER switch
Set ON to superimpose text information on the monitor output.

Note

Set this switch ON when using the freeze mix function.

❽ TC (time code) mode switch 2
Sets the mode for advancing time code values when the TC mode switch 1 ❾ has been set to PRESET.

F-RUN: The time code advances continuously whether or not the camcorder is recording. Use this setting to align the time code value with real time.

SET: Use this setting to set the time code or user bit value.

R-RUN: The time code value advances only during recording. Use this setting to have consecutive recordings on the tape.

Note for the DSR-300

There are two time code frame modes: drop-frame (DF) mode and non drop-frame (NDF) mode. This product is shipped with drop-frame mode selected.

For details on switching between drop-frame mode and non drop-frame mode, see "Selecting Drop-frame (DF)/Non-drop frame (NDF) mode (for DSR-300) —Menu 204" (page 93).

For details on drop-frame mode and non drop-frame mode, see "Drop-frame mode (for DSR-300 Only)" on page 62.

❾ TC (time code) mode switch 1
Selects between resetting the time code value or continuing from the time code value at the end of the previous recording.

PRESET: This starts recording time code values on the tape from the currently set value.

REGEN: During back space editing, this reads the tape's current time code value and sets the time code to record starting from that value. The time code value is advanced in R-RUN mode regardless of the setting on TC mode switch 2 ❽.

DATE/TIME: This synchronizes the time code to the real time clock set in the VCR menu *(see page 93)*. In this case the time code of the DSR-300 is recorded in DF (drop-frame mode).

Note

If the ClipLink function is set to on (meaning ClipLink shooting is allowed) in menu 211 and **CONT** is displayed in the display window, regardless of the setting of this switch, the time code generator automatically enters the REGEN mode at recording. (When you will not perform ClipLink shooting, set the ClipLink function to oFF *(see page 65)*.

❿ ClipLink CONTINUE button
When restart ClipLink shooting, press this button to add the new clip at the end of the recorded clips.

Note

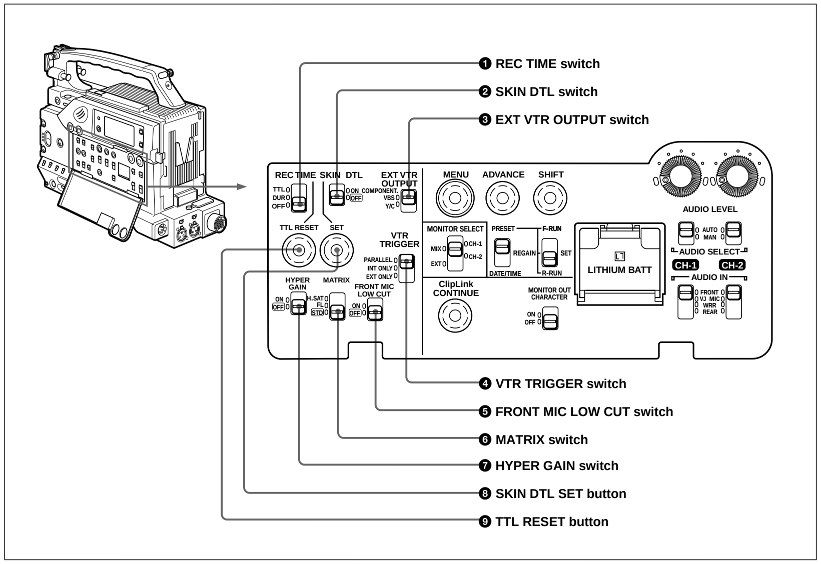
When restart recording without pressing this button, the pre-recorded ClipLink log data and Index Pictures are deleted.

For details , see "ClipLink Shooting" (page 65).

⓫ MONITOR SELECT (audio monitor selection) switch
Selects audio output via the speaker (❿ *on page 17)* or earphone.

CH-1: Channel 1 audio
MIX: Mixed audio (channels 1 and 2)
CH-2: Channel 2 audio
EXT: The sound selected by an external VCR connected to the VTR connector (❽ *on page 25)*

Left side


❶ REC TIME switch
❷ SKIN DTL switch
❸ EXT VTR OUTPUT switch
REC TIME
TTL
DUR
OFF
SKIN DTL
ON
OFF
EXT VTR OUTPUT
COMPONENT.
VBS
Y/C
MENU
ADVANCE
SHIFT
AUDIO LEVEL
TTL RESET
SET
VTR TRIGGER
PARALLEL
INT ONLY
EXT ONLY
MONITOR SELECT
MIX
EXT
CH-1
CH-2
PRESET
REGAIN
DATE/TIME
F-RUN
SET
R-RUN
LITHIUM BATT
AUTO
MAN
AUDIO SELECT
CH-1
CH-2
AUDIO IN
FRONT
VJ MIC
WRR
REAR
HYPER GAIN
ON
OFF
MATRIX
H.SAT
FL
STD
FRONT MIC LOW CUT
ON
OFF
ClipLink CONTINUE
MONITOR OUT CHARACTER
ON
OFF
❹ VTR TRIGGER switch
❺ FRONT MIC LOW CUT switch
❻ MATRIX switch
❼ HYPER GAIN switch
❽ SKIN DTL SET button
❾ TTL RESET button

❶ REC (recording) TIME switch
Selects the recording time indication in the viewfinder.

TTL (TOTAL): Displays the total recording time. The total recording time is not reset even when you stop the VCR and power off the camcorder, for example, to replace the battery pack.
DUR (DURATION): Displays the recording time of the current cut.
OFF/TC: Switches off the recording time display. If, however, in advanced menu 6 you set the time code display item (TC IND) to ON *(see page 87)*, then the VCR time data (time code, counter, or user bit value) is displayed.

Note

The recording time displayed when this switch is set to TTL or DUR is obtained by counting the duration of the internal reference signal input to the camcorder. The value may not agree exactly with the value derived from the time code values. Furthermore, the value displayed may not be correct when another manufacture's VCR is connected to the camcorder.

❷ SKIN DTL (skin detail) switch
Set this switch ON to use the skin detail correction function.

For details, see "Skin Detail Correction" (page 111).

❸ EXT VTR OUTPUT switch
Depending on the external VCR connected to the VTR connector (❽ *on page 25)*, this switches the video signal output to the VCR.

COMPONENT/VBS: Component/composite video signal
Y/C: S-video signal

❹ VTR TRIGGER switch
Sets the function of the VTR button on the camcorder or lens when a VCR is connected to the VTR connector (❽ *on page 25)*.

PARALLEL: Operates both internal and external VCRs.
INT ONLY: Operates the internal VCR only. External VCR operation is performed locally.
EXT ONLY: Operates the external VCR only.

❺ FRONT MIC LOW CUT switch
Set this switch to ON to insert a high-pass filter in the microphone circuit, reducing wind noise.
Normally leave the switch in the OFF position.

❻ MATRIX switch
Selects the color matrix setting to change the picture color adjustment.

H.SAT: Colors are emphasized.
FL: Colors appear normal even when shooting under fluorescent lighting.
STD: The color matrix in standard setting is used. Normally leave the switch in this position.

❼ HYPER GAIN switch
Setting this switch to ON increases the gain by a factor of about 60 with respect to 0 dB (a 30 dB increase by electronic amplification and a 6 dB increase for DPR, bringing about a total gain increase of 36 dB).
When this switch is in ON position, the indication "HYPER" appears in the viewfinder, and the GAIN UP indicator in the viewfinder also lights.
When finished shooting, return this switch to OFF position. The "HYPER" indication disappears and the GAIN UP indicator goes out.

Note

Increasing the gain with this switch reduces the horizontal resolution by approx. 50%.

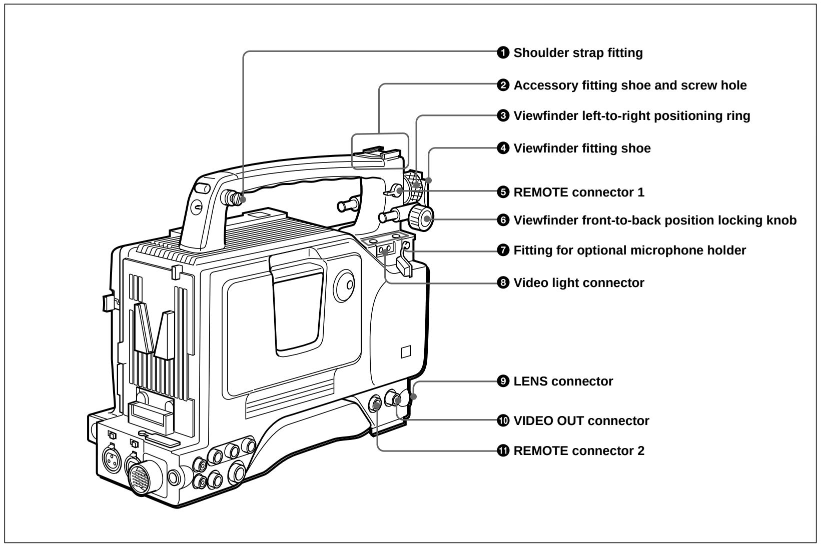
❽ SKIN DTL (skin detail) SET button
Press this button with the SKIN DTL switch ❷ to display the area detect cursor on viewfinder screen. Place the cursor on the target and press this button to perform skin detail correction.

For details, see "Skin Detail Correction" (page 111).

❾ TTL (total) RESET button
Pressing this button resets the total recording time (TTL selection) to 0.

Left and Upper View

Front section


❶ Shoulder strap fitting
❷ Accessory fitting shoe and screw hole
❸ Viewfinder left-to-right positioning ring
❹ Viewfinder fitting shoe
❺ REMOTE connector 1
❻ Viewfinder front-to-back position locking knob
❼ Fitting for optional microphone holder
❽ Video light connector
❾ LENS connector
❿ VIDEO OUT connector
⓫ REMOTE connector 2

❶ Shoulder strap fitting
To use the supplied shoulder strap, fix one end here and the other end to the right side. *(See page 38.)*

❷ Accessory fitting shoe and screw hole
Attach optional video lights or other accessories here.

❸ Viewfinder left-to-right position fixing ring
Loosen this ring to adjust the left-to-right position of the viewfinder. *(See page 34.)*

❹ Viewfinder fitting shoe
Fix the DXF-701WS/701WSCE Viewfinder here.

❺ REMOTE connector 1 (mini-jack)
Connect the RM-LG1 Remote Control Unit to enable remote operation of the ClipLink function.

Note
The RM-81 cannot be connected.

❻ Viewfinder front-to-back position locking knob
Loosen this knob to adjust the front-to-back position of the viewfinder. *(See page 34.)*

❼ Fitting for optional microphone holder
You can fit an optional CAC-12 Microphone Holder here. *(See page 35.)*

❽ Video light connector
A video light with a maximum power consumption of 30 W such as the Anton Bauer Ultralight 2 or equivalent can be connected.

❾ LENS connector (12-pin)
If you use a lens with cable, connect the lens cable.

❿ VIDEO OUT connector (BNC)
This outputs the video signal captured by the camcorder.

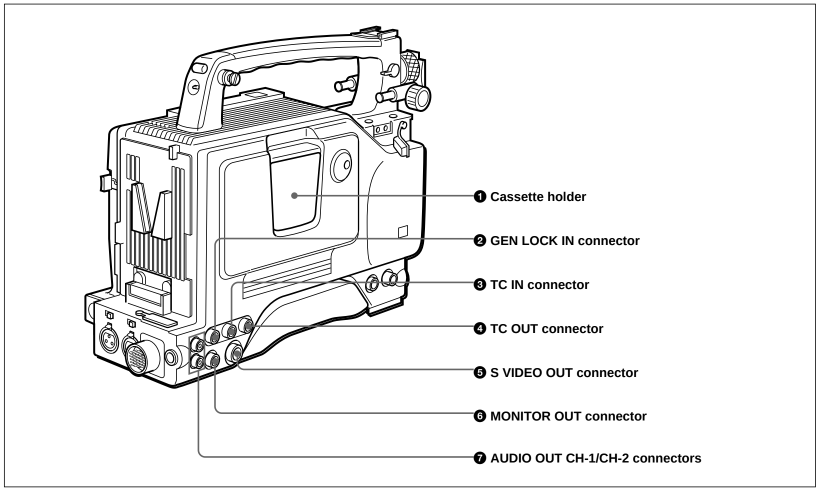
⓫ REMOTE connector 2 (10-pin)
Connect the optional RM-M7G Remote Control Unit to this connector. Set the CAMERA HEAD SELECT switch on the bottom of RM-M7G to 1.

You can also connect a remote control unit with microphone.

Note
EZ mode cannot be used if the RM-M7G is connected to the camcorder.

For more information about a remote control unit with microphone, contact your Sony dealer.

Rear section


❶ Cassette holder
❷ GEN LOCK IN connector
❸ TC IN connector
❹ TC OUT connector
❺ S VIDEO OUT connector
❻ MONITOR OUT connector
❼ AUDIO OUT CH-1/CH-2 connectors

❶ Cassette holder
Power the camcorder and press the EJECT button to open the lid. Insert the cassette and close the lid by pressing the indication “PUSH” .

❷ GEN LOCK IN (gen lock video input) connector (BNC)
When synchronizing the camcorder to an external signal, input a reference video signal (VBS or BS).

❸ TC IN (time code input) connector (BNC)
Input an external signal for synchronizing the built-in time code generator. Use an SMPTE (DSR-300) or EBU (DSR-300P) time code signal.

Note
Use a jitterless LTC signal. Using an LTC signal reproduced by other equipment may cause the camcorder to malfunction.

❹ TC OUT (time code output) connector (BNC)
This outputs time code signals from the built-in time code generator. When a time code signal is input to the TC IN connector (❸ *on page 23*), this output signal is synchronized to it.

For details about time code, see "Setting Time Values" on page 59.

❺ S VIDEO OUT (S-video output) connector (DIN 4-pin)
This outputs the image being shot or played back as S-video signals. Connect to the S-video input connector on an external VCR or video monitor.

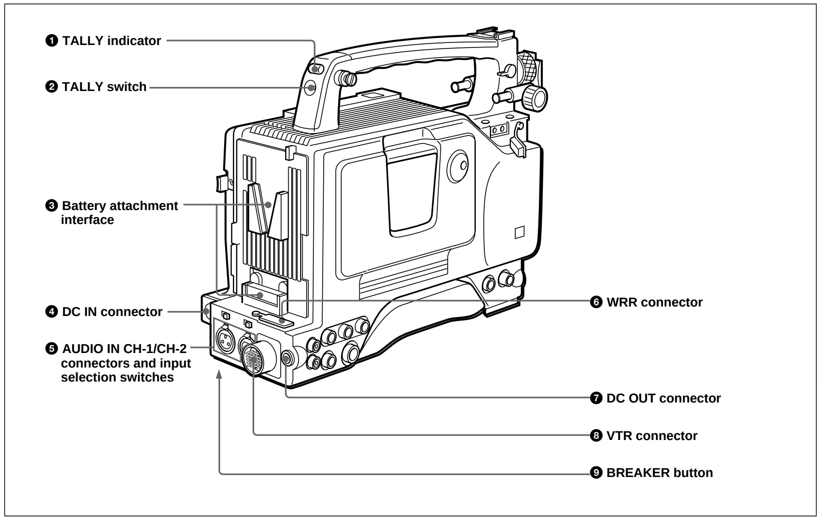
❻ MONITOR OUT (output) connector
Outputs the image being shot or played back as composite video signals. Connect to the video input connector on an external VCR or video monitor.

Note

The output signal from this connector may discontinue when switching the operation between recording and playback. Do not use as a reference signal for external equipment.

❼ AUDIO OUT CH-1/CH-2 (audio output channel 1 and 2) connectors (phono jacks)
These output the sound being recorded or played back. Connect to a stereo amplifier or video monitor's audio input connectors.

Rear and Bottom



❶ TALLY (back tally) indicator (red)
This indicator lights during recording. It will not light if the TALLY switch ❷ is set to OFF. This indicator also blinks to indicate warnings in the same manner as the REC/TALLY indicator in the viewfinder.

❷ TALLY switch
Set this switch to ON to activate the TALLY indicator ❶ function.

For details, see "Warning System" on page 115.

❸ Battery attachment interface
Attach a battery pack or an AC-DN1 AC Adaptor. When using the WRR-855A synthesized tuner (for wireless microphones), attach the CA-WR855 Camera Adaptor here.

For information about fitting a battery pack or an AC adaptor, see "Power Supply" (page 44). For information about attaching a synthesized tuner, see "Connecting to Audio System" (page 39).

❹ DC IN (DC power input) connector (XLR 4-pin, male)
To use the camcorder with an AC power supply connect an optional AC-550/550CE or CMA-8A/8ACE AC Adaptor.

❺ AUDIO IN CH-1/CH-2 (audio input channel 1 and 2) connectors (XLR 3-pin, female) and input selection switches
Connect a microphone or other external audio equipment. Set the input selection switches as shown below according to the microphone or equipment.

MIC+48V ON (right position): For connecting to a 48-V microphone

Note

If this position is selected for a microphone other than 48-V microphone, the microphone may be damaged.

MIC (center position): For connecting any microphone other than 48-V microphone
LINE (left position): For connecting an external audio signal source such as a stereo amplifier.

❻ WRR (synthesized tuner) connector (7-pin)
Insert the WRR-855A synthesized tuner into the CA-WR855 Camera Adaptor and connect the CA-WR855 here.

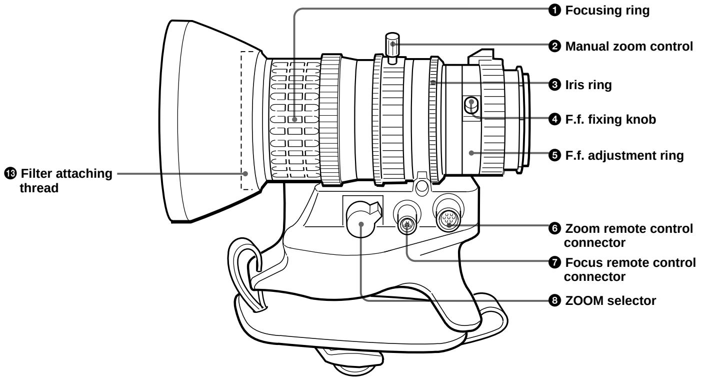
For information about attaching a synthesized tuner, see "Connecting to Audio System" (page 39)

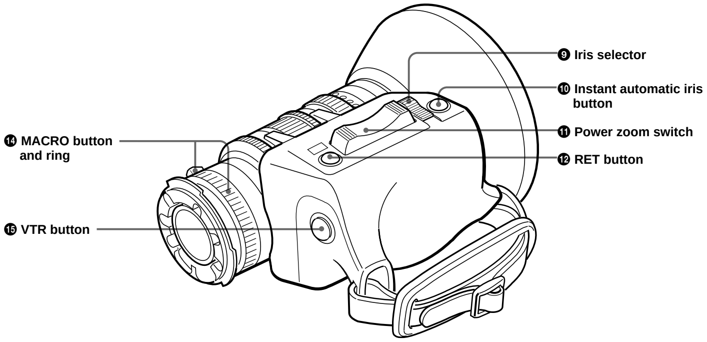
❼ DC OUT (DC power output) connector (4-pin, female)
This connector supplies power for a WRR-810A/860A UHF Portable Tuner.

❽ VTR connector (26-pin, male)
Connect an external VCR.

❾ BREAKER (breaker reset) button
If an excessive current flows in the internal circuits, the internal circuit breaker shuts off the power supply. Push this button after eliminating the cause of the excessive current.

VCL-714BXA Zoom Lens


❶ Focusing ring
❷ Manual zoom control
❸ Iris ring
❹ F.f. fixing knob
❺ F.f. adjustment ring
⓭ Filter attaching thread
❻ Zoom remote control connector
❼ Focus remote control connector
❽ ZOOM selector


❾ Iris selector
❿ Instant automatic iris button
⓮ MACRO button and ring
⓫ Power zoom switch
⓬ RET button
⓯ VTR button

❶ Focusing ring
Turn this ring to focus the lens on the subject.

❷ Manual zoom control
For direct manual zoom control, set the ZOOM selector to the “M” position, and turn this control.

❸ Iris ring
For manual iris control, set the iris selector to the “M” position, and turn this ring.

❹ F.f. (flange focal length) fixing knob
Fixes the F.f. adjustment ring ❺.

❺ F.f. (flange focal length) adjustment ring
To adjust the flange focal length, loosen the F.f. fixing knob ❹ on this ring, then turn the ring. *(See page 107.)*

❻ Zoom remote control connector (8-pin)
For remote control of zoom operations, connect an optional LO-23 Lens Remote Control Unit.

❼ Focus remote control connector (3-pin)
This is not used.

❽ ZOOM selector
This selects the mode of zoom operation.
S (servo): power zoom
M (manual): manual zoom

❾ Iris selector
This selects the mode of iris operation. *(See page 108.)*
A (automatic): automatic iris
M (manual): manual iris

❿ Instant automatic iris button
While using manual iris control, press this button to switch temporarily to the automatic iris control setting. The automatic setting is maintained as long as you hold the button down.

⓫ Power zoom switch
Use this to carry out a power zoom.
W end: zoom toward wide angle
T end: zoom toward telephoto
Pressing the switch harder increases the zoom speed.

⓬ RET (return) button
This allows you to check the video signal as follows. When the internal VCR is in recording pause mode, press this button to review the last few seconds of the recording in the viewfinder (recording review). When an external VCR is connected, pressing this button connects the E-E1) video signal from the external VCR to the viewfinder while the internal VCR is recording or no tape is inserted in the internal VCR.

For details, see “Playback — Checking Recorded Contents” (page 58).

⓭ Filter attachment thread (72 mm dia., 0.75 mm pitch)
Use to attach a commercially available threaded filter.

⓮ MACRO button and ring
For close-up work, hold this button down while turning the ring. *(See page 109.)*

⓯ VTR button
This button starts and stops recording on the VCR. Press it once to start recording, and once more to stop.

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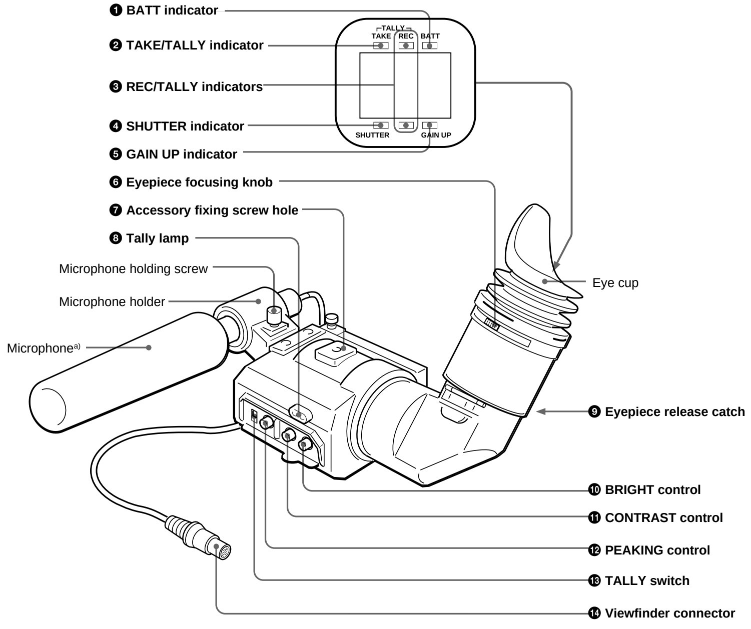
1) **E-E video signal:** “electric-to-electric” video signal. This is the input video signal which has passed through internal electrical circuits, but has not been converted to a magnetic signal.

http://getMANUAL.com

DXF-701WS/701WSCE Viewfinder

Note

You can switch the scan size of the DXF-701WS/701WSCE in accordance with the aspect ratio selected on the camera or camcorder. However, it operates in 4:3 mode when used on the DSR-300/300P.


❶ BATT indicator
❷ TAKE/TALLY indicator
❸ REC/TALLY indicators
❹ SHUTTER indicator
❺ GAIN UP indicator
❻ Eyepiece focusing knob
❼ Accessory fixing screw hole
❽ Tally lamp
Microphone holding screw
Microphone holder
Microphone a)
TALLY
TAKE
REC
BATT
SHUTTER
GAIN UP
Eye cup
❾ Eyepiece release catch
❿ BRIGHT control
⓫ CONTRAST control
⓬ PEAKING control
⓭ TALLY switch
⓮ Viewfinder connector

a) Not supplied with the optional DXF-701WS/701WSCE

❶ BATT (battery) indicator (red)
This indicates when the battery capacity is low.

❷ TAKE/TALLY indicator (orange)
When using the ClipLink function while shooting, this indicator lights when the TAKE button (❻ *on page 11)* has been pressed to set a Mark IN point and goes out when a Mark OUT point is set.

❸ REC/TALLY (recording/tally) indicators (red)
- From the time when you press the VTR button (❾ *on page 11 and* ⓯ *on page 27)* on the lens or camcorder, this flashes until recording starts, then stays on continuously during recording.
- This is also used to indicate a fault. *(See page 115.)*
- The lower indicator can be disabled by menu setting. *(See page 86.)*

❹ SHUTTER indicator (red)
This lights when the SHUTTER switch (❺ *on page 11)* is in the ON position. (If the EVS is selected, the indicator will not light.)

❺ GAIN UP indicator (orange)
This lights when the gain is 3 dB or more.

❻ Eyepiece focusing knob
Turn this to adjust the viewfinder focus to match your eyesight. *(See page 106.)*

❼ Accessory fixing screw hole
Attach optional video lights or other accessories here.

❽ Tally lamp
When the TALLY switch ⓭ is in the ON position, this operates in the same way as the REC/TALLY indicators ❸.

❾ Eyepiece release catch
To view the viewfinder screen directly, press this catch, and hinge up the eyepiece.

❿ BRIGHT (brightness) control
This adjusts the brightness of the viewfinder image. *(See page 106.)*

⓫ CONTRAST control
This adjusts the contrast of the viewfinder image. *(See page 106.)*

⓬ PEAKING control
This adjusts the outline intensity of the viewfinder image. *(See page 106.)*

⓭ TALLY switch
Set this switch to the ON position to use the tally lamp ❽.

⓮ Viewfinder connector (20-pin)
Connect this to the VF connector.

Inserting and Replacing the Lithium Battery

The camcorder uses a lithium battery to retain stored data. When using the camcorder for the first time, be sure to insert the supplied lithium battery (CR2032). The camcorder will not operate correctly without this lithium battery.

Lifetime of the lithium battery

When the lithium battery's voltage falls, the lithium backup battery warning **Li** appears in the display window. If this warning appears, replace the lithium battery (CR2032) within three or four days.
The lithium battery has an average service life of about two years, however operation in ClipLink mode will shorten the lifetime until about one year (when the DSBK-301 is fitted).

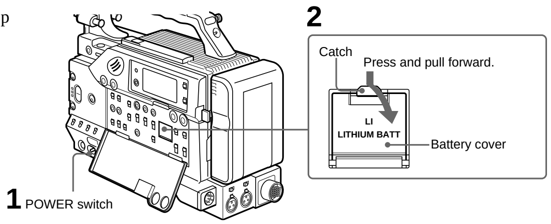
Inserting or replacing the lithium battery

Notes

- Carefully read the instructions for inserting and replacing the lithium battery. Lithium batteries may explode if misused.
- Use only CR2032 Lithium Batteries. Other types of lithium batteries may come loose when the camcorder is moved. If you have difficulty finding CR2032 Lithium Batteries, contact your Sony dealer.

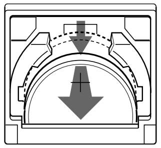
1 Turn the POWER switch on.

2 Press down the catch at the top of the battery cover and open the cover.



3 Take out the lithium battery.

Press down and pull out toward you.



4 Reverse step **3** to insert a replacement lithium battery. Make sure that the **+ symbol on the battery is facing you.**

5 Close the battery cover.

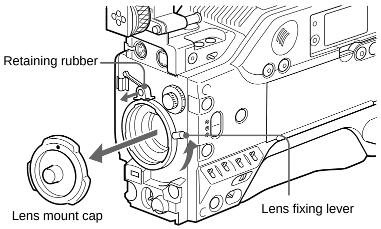
Fitting the Lens

In the case of the DSR-300K/300PK/300F/300PF model, the lens is already fitted. In other cases, use the following procedure to fit the lens.

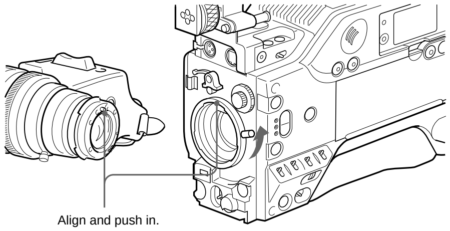
Note

Be sure to turn off the power before fitting the lens.

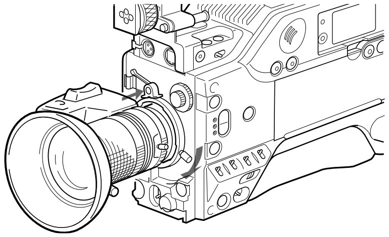
1 Remove the retaining rubber which prevents the lens mount from coming loose, then raise the lens fixing lever, and remove the lens mount cap.



2 With the lens fixing lever turned fully counterclockwise, push in the lens, aligning the projection on the lens with the cutout on the camcorder.



3 Supporting the lens, turn the lens fixing lever fully clockwise. Replace the retaining rubber on the lens mount.



If using a lens with a 6-pin connector

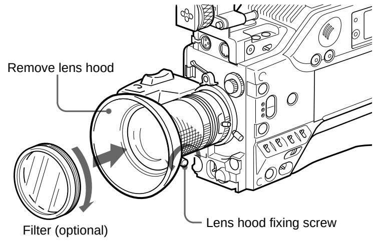
This camcorder head has a 12-pin LENS connector. If the lens cable has a 6-pin connector, fit an adaptor cable: LO-612 (manufactured by Canon) or ECF-124 (manufactured by Fujinon) or equivalent.

If using a $^{2}/_{3}$” lens

Fit the lens using the optional LO-32BMT $^{2}/_{3}$” lens adapter.

Fitting optional filters

Loosen the lens hood fixing screw to remove the lens hood, then attach the filter.



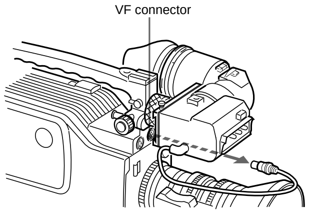
Using Accessories

Using the Viewfinder

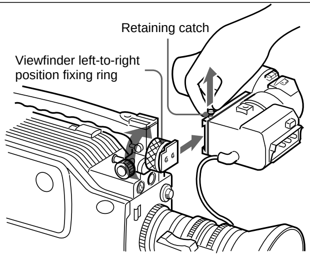
Removing the Viewfinder

Remove any microphone from the viewfinder before beginning.

1 Pull the viewfinder connector out of the VF connector on the front.


VF connector

2 Loosen the viewfinder left-to-right position fixing ring, then pulling up the retaining catch, slide the viewfinder out.


Retaining catch
Viewfinder left-to-right position fixing ring

To fit the viewfinder
Reverse the removal procedure. (You need not hold the viewfinder stopper up.)

Left eye adaptor
By fitting a left eye adaptor, you can use the camcorder with your left eye to the viewfinder.

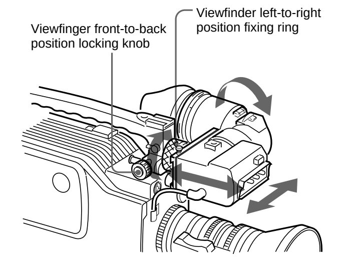
Note

You cannot stow the camcorder attached with a left eye adaptor in the LC-421 Carrying Case.

For details, consult your Sony dealer.

Adjusting the viewfinder position

To adjust the viewfinder left-to-right position, loosen the left-to-right fixing ring, and to adjust the front-to-back position loosen the front-to-back position locking knob.

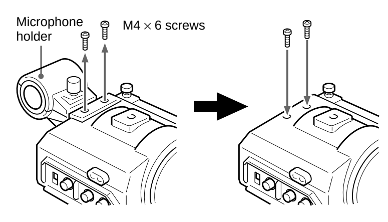

Viewfinger front-to-back position locking knob
Viewfinder left-to-right position fixing ring

Using an Optional Microphone

To use a long microphone such as the optional ECM-670/672, remove the supplied microphone holder, and fit an optional CAC-12 Microphone Holder to the camcorder, then mount the microphone in this holder.

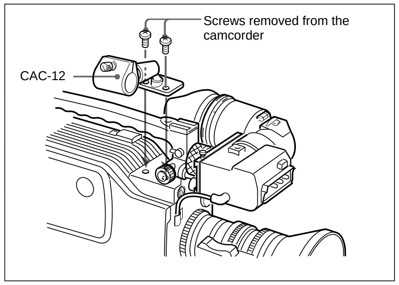
Removing the supplied microphone holder

Remove the two microphone holder retaining screws (M4 × 6) from the viewfinder, remove the microphone holder, then replace the screws in their original positions.


Microphone holder
M4 × 6 screws

Fitting the optional CAC-12 Microphone Holder

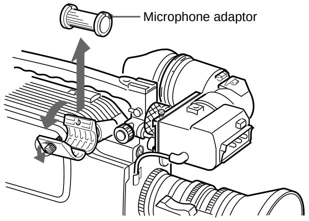
Remove the two retaining screws (M3 × 8) for the optional microphone holder, then use these screws to attach the CAC-12 Microphone Holder.


Screws removed from the camcorder
CAC-12

Fitting an optional microphone

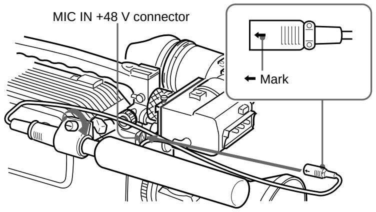
Use the following procedure to attach an optional ECM-670 Microphone.

1 Loosen the screw of the CAC-12 Microphone Holder, then open the holder and replace the microphone adaptor with the one supplied with the ECM-670 Microphone.


Microphone adaptor

(Continued)

2 Insert the microphone in the microphone holder, close the holder, and tighten the screw. Connect the microphone cable to the MIC IN +48 V connector.



Fitting optional microphones (operable with a 48 V supply) other than the ECM-670

Use the same fitting procedure as for the ECM-670, but note the following differences with respect to the microphone adaptor.

ECM-672: no microphone adaptor required.

Slender microphones (19 mm ($^3/_4$ inch) diameter): use the microphone adaptor supplied with the CAC-12.

Using a Video Light

For the DSR-300/300P, you can use the Anton Bauer Ultralight 2 or equivalent. Use a video light powered by 12 V with maximum power consumption of 30 W.

- If you connect the video light to the video light connector on the DSR-300/300P *(page 22)* and set the LIGHT switch to AUTO *(page 12)*, you can turn the light on and off automatically as you start and stop VCR operation.
- The output of the video light connector on the DSR-300/300P is controlled to 12 V even when the camcorder is supplied with 12 V or more power (through the DC IN connector or battery pack). The brightness or color temperature of the light will not change according to voltage increase.

Notes

- Do not use the video light with power consumption of over 30 W.
- The brightness or color temperature of the light will change when the supplied voltage is under 12 V.

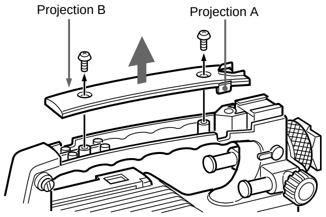
To fit the video light

Fit the video light to the camcorder grip or the accessory shoe on the viewfinder and connect the video light cable to the video light connector.

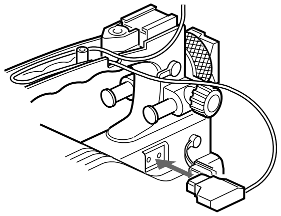
When using a video light with a long cable

You can pass a part of the cable through the camcorder grip.

1 Remove the cover of the camcorder grip and break off projection A (see the figure).

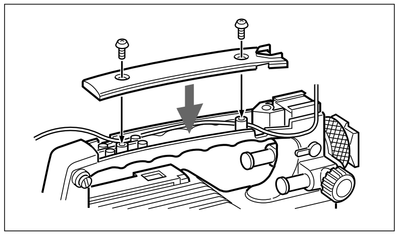


2 Pass the cable through the grip as shown in the figure and replace the cover.



When using equipment other than the camcorder for power supply

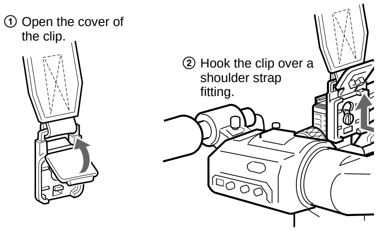
Break off projections A and B on the camcorder. (See step **1** of the previous section “When using a video light with a long cable”.) Insert the cable into the grip from the front hole and take out from the rear hole as shown in the figure.



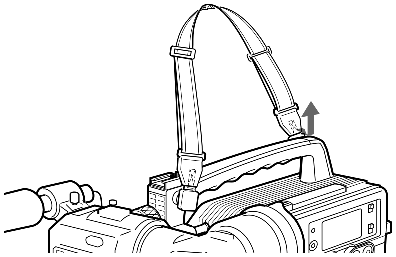
Fitting the Shoulder Strap

This section describes the procedure for fitting the supplied shoulder strap to the camcorder.

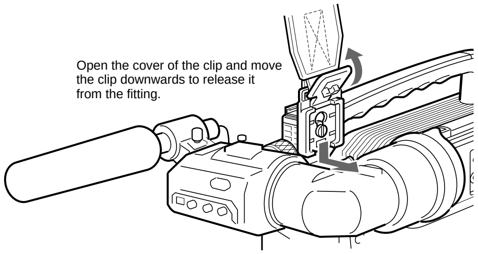
1 Fit one of the clips to a shoulder strap fitting.


① Open the cover of the clip.
② Hook the clip over a shoulder strap fitting.

2 Fit the other clip to the shoulder strap fitting on the other side of the grip in the same way.



Removing the shoulder strap


Open the cover of the clip and move the clip downwards to release it from the fitting.

Connecting to Audio System

The DSR-300/300P is able to record sound not only from the microphone attached but also from a wireless microphone or an external audio system.

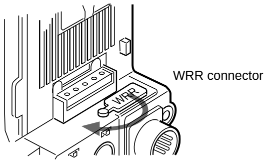
Using a wireless microphone system

You can use the wireless microphone system including a WRT-810A/830A UHF Wireless Microphone and a WRR-810A/855A/860A UHF Portable Tuner to record sound.

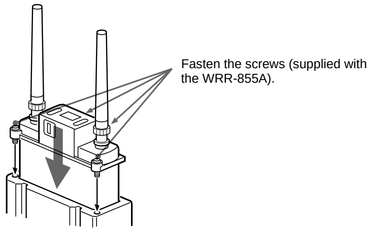
For details on using the wireless microphone system, see the operating instructions for the microphone and tuner.

To connect a WRR-855A

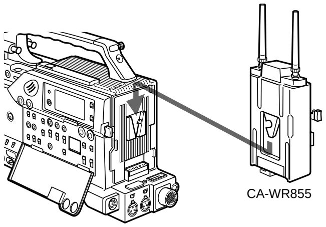
1 Open the cover of the WRR connector.


WRR connector
WRR

2 Insert the WRR-855A into the CA-WR855.


Fasten the screws (supplied with the WRR-855A).

3 Fit the attachment plate on the rear side of the CA-WR855 to the V-groove on the battery attachment interface, and then slide the CA-WR855 down until it connects to the WRR connector.

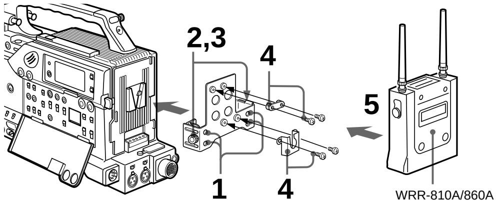


4 Set one of the AUDIO IN (CH-1/CH-2) switches to WRR.

Using Accessories

To connect a WRR-810A/860A

Attach the WRR tuner fitting (not supplied) to the rear of the camcorder as shown in the following figure.



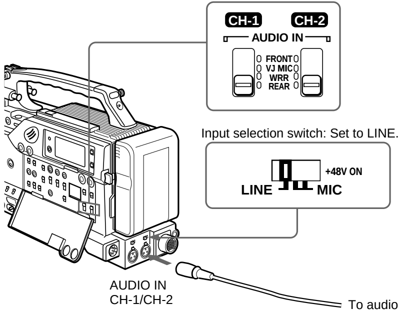
1. Pass a screwdriver through the holes and tighten the screws .
2. Loosen the adjustment screws.
3. Adjust the metal fitting position for a battery pack to be attached, and tighten the adjustment screws to fix its position.
4. Attach the holder kit (two fittings and four screws, supplied with the tuner) to the WRR tuner fitting (one for the upper position and the other for the lower position).
5. Mount the tuner on the WRR tuner fitting.

For details about the WRR tuner fitting, contact your Sony dealer.

Using an external audio system

Connect an audio mixer or other external audio system component to the AUDIO IN CH-1/CH-2 connector as shown below.

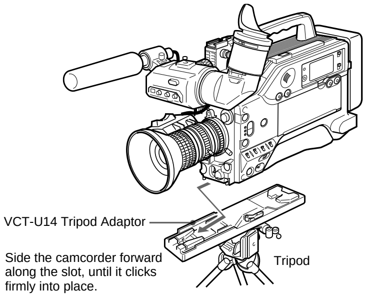
AUDIO IN (CH-1/CH-2) switches: Set to REAR.



Input selection switch: Set to LINE.

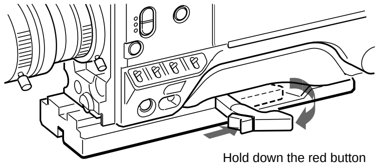
Fitting to a Tripod

First fit the VCT-U14 Tripod Adaptor to the tripod, then mount the camcorder on the tripod adaptor.



Side the camcorder forward along the slot, until it clicks firmly into place.

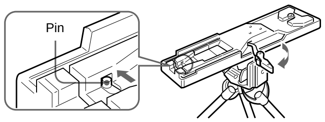
Removal



Hold down the red button and pull the lever in the direction of the arrow.

Note

After removing the camcorder, if the tripod adaptor pin has not returned to its original position, hold down the red button and move the lever in the direction of the arrow to return the pin to its original position. It is not possible to mount a camcorder with the pin left out.

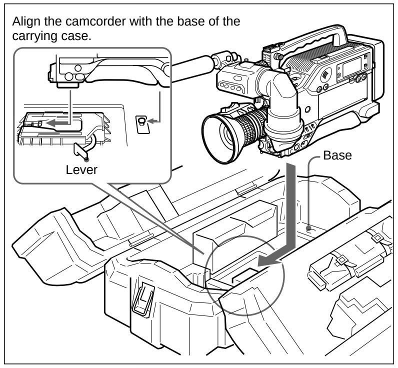


Using Accessories

Using the LC-421 Carrying Case

Stowing the camcorder

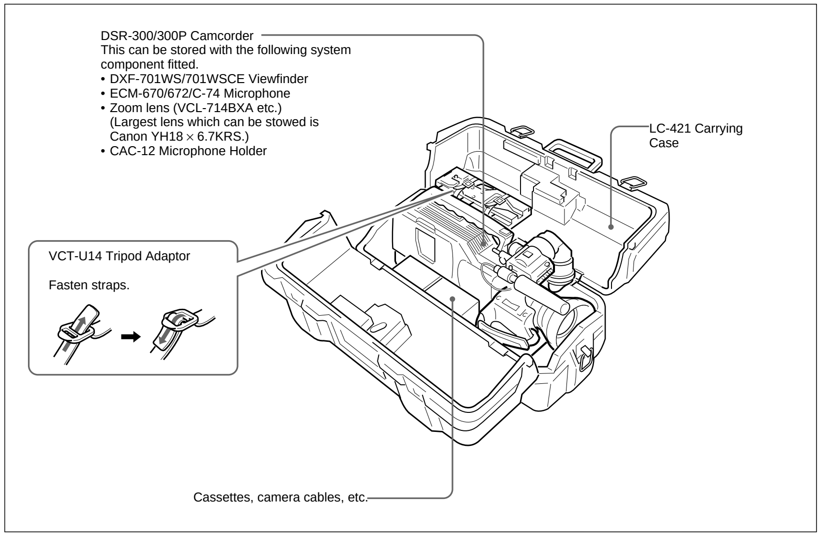
Align the camcorder with the base of the case, and slide the camcorder in forward.
Checking that the pin at the rear engages correctly, push forward until it locks into place.


Align the camcorder with the base of the carrying case.
Lever
Base

Notes

- Turn the viewfinder downward, slide it fully rearward and to the left, then fix before stowing.
- When an optional microphone (ECM-670/672, C-74, etc.) is attached, loosen the microphone fixing screws, move the microphone to the lowest position, and fix before stowing.

Example of fully-stowed carrying case

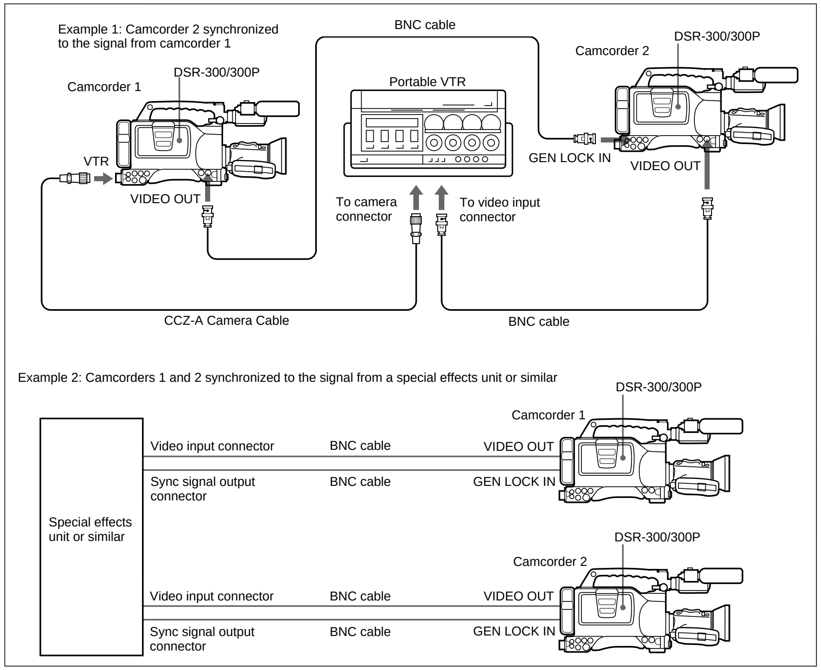

DSR-300/300P Camcorder
This can be stored with the following system component fitted.
• DXF-701WS/701WSCE Viewfinder
• ECM-670/672/C-74 Microphone
• Zoom lens (VCL-714BXA etc.) (Largest lens which can be stowed is Canon YH18 × 6.7KRS.)
• CAC-12 Microphone Holder
LC-421 Carrying Case
VCT-U14 Tripod Adaptor
Fasten straps.
Cassettes, camera cables, etc.

Connections

Connecting a Number of Camcorders

When using two or more synchronized camcorders, connect an external sync signal to the GEN LOCK IN connector, supplying a VBS or BS signal. The camcorder will then operate synchronized to this signal.

You can adjust the synchronization using the basic menu. *(See page 79.)*


Example 1: Camcorder 2 synchronized to the signal from camcorder 1
BNC cable
DSR-300/300P
Camcorder 2
Camcorder 1
DSR-300/300P
Portable VTR
VTR
VIDEO OUT
GEN LOCK IN
VIDEO OUT
To camera connector
To video input connector
CCZ-A Camera Cable
BNC cable
Example 2: Camcorders 1 and 2 synchronized to the signal from a special effects unit or similar
DSR-300/300P
Camcorder 1
Video input connector
BNC cable
VIDEO OUT
Sync signal output connector
BNC cable
GEN LOCK IN
Special effects unit or similar
DSR-300/300P
Camcorder 2
Video input connector
BNC cable
VIDEO OUT
Sync signal output connector
BNC cable
GEN LOCK IN

Connecting an External VCR

You can use an external VCR connected to the VTR connector (26-pin) for recording.
The following VCR can be connected.

VCR	Connecting cable
BVW-50/50P/35/35P Portable VCR	CCZ-A Camera cable (max. length 10 m (33 ft.))
VO-8800/6800 U-matic VCR	CCZQ-A Camera cable (max. length 10 m (33 ft.))

Note

This is no power supply connection between the camcorder and VCR. Provide separate power supplies.

Power Supply

The following power supplies can be used with the camcorder.

- BP-L40/L60/L60A/L90/L90A lithium-ion battery pack
- NP-1B Ni-Cd Battery Pack (The DC-L1Battery Adaptor is required.)
- BP-90A Ni-Cd Battery Pack (The DC-L90 Battery Adaptor is required.)
- AC power (The AC-550/550CE, AC-DN1 or CMA-8/8CE AC Adaptor is required.)

Alternatively, you can make combined use of internal and external batteries, by mounting one of the above batteries as an internal battery and connecting an external battery that can be a BP-90A contained in a DC-210 Battery Adaptor and connected to the DC IN connector of the camcorder.

Using a BP-L40/L60/L60A/L90/L90A Battery Pack

With a battery pack, the camcorder will operate continuously for the time shown below.

BP-L40: Approx. 80 minutes
BP-L60A: Approx. 180 minutes
BP-L90A: Approx. 290 minutes

Before use, charge the battery pack with a BC-L50/L100/L100CE Battery Charger.

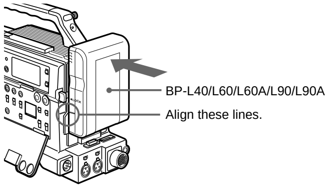
Notes on using the battery pack

- A warm battery pack may not be able to be fully recharged.
- Even when fully charged, battery packs gradually lose their charge naturally. Use the battery packs as soon as possible after recharging.
- To prolong the life of battery packs, store them in a cool place (about 20°C (68°F)), and charge in a place with an ambient temperature between 10°C and 30°C (50°F to 86°F).
- At low temperatures, the usable time of battery packs decreases. When the ambient temperature is 0°C (32°F), usable time decreases by about 10%. (However, the usable time is affected by the power consumption of the connected camcorder and the usage status of the battery packs.) The usable time of battery packs increases if they are warmed to the room temperature (about 20°C (68°F)) before use at low temperatures.
- If you use the BP-L40 at temperatures of 0°C (32°F) or below, when power consumption of the camcorder and accessories is 40 W or higher (due to using a video light, for example), power may break after a short time (a few minutes). To increase the usable time, store the BP-L40 in a warm place and power on the connected camcorder before the BP-L40 cools down.
- Compared to the BP-L40, the BP-L60/L60A/L90/L90A offer better performance at low temperatures. The BP-L60/L60A/L90/L90A are recommended for use at low temperatures.
- Carrying a spare battery pack is recommended.

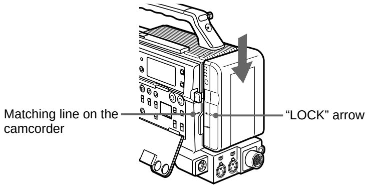
The BP-L40/L60/L60A/L90/L90A is free from memory effect. There is no need to discharge it fully before recharging.

Attaching the battery pack

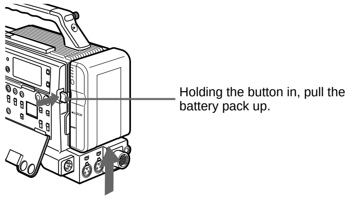
1 Press the battery pack against the rear of the camcorder, aligning the side line of the battery pack with the line on the camcorder.



2 Slide the battery pack down until its “LOCK” arrow points at the matching line on the camcorder.



Detaching the battery pack



Avoiding breaks in operation due to dead batteries

If you use both an internal battery pack and an external battery connected to the DC IN connector at the same time, you can avoid breaks in operation due to the dead batteries.

When the external battery begins to fail and an internal battery pack is also used
Remove the DC output cable of the external battery from the DC IN connector. The power source will switch to the internal battery pack.

When the external battery begins to fail and an internal battery pack is not used
First load the camcorder with a fully charged internal battery pack, then remove the DC output cable of the external battery from the DC IN connector. The power source will switch to the internal battery pack. To use an external battery again, connect a fully charged external battery to the DC IN connector before unloading the internal battery pack. The power source will switch to the external battery.

Continuous operation when operating with only an internal battery pack
First, connect a fully charged external battery to the DC IN connector, then change the internal battery.

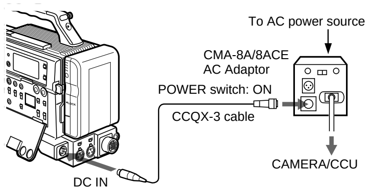
Notes

- Whenever an internal battery pack is loaded and an external battery is connected to the DC IN connector, the external battery is always used as the power source.
- There may be some noise on the video or audio signal at the instant the power sources are switched.

Using an AC Adaptor

Using a CMA-8A/8ACE AC Adaptor

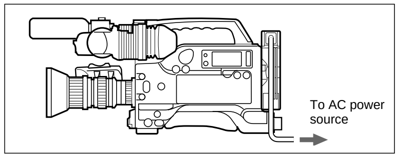
Connect the camcorder to the AC power supply as shown in the following figure, and turn the POWER switch of the CMA-8A/8ACE ON.



Power Supply

Using an AC-DN1 AC Adaptor

Mount the AC-DN1 on the camcorder in the same way as a battery, then connect to the AC power source.

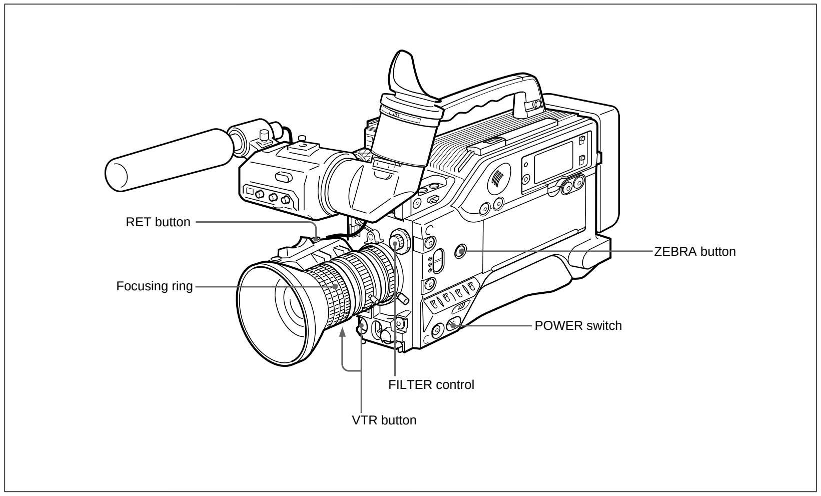


Using the Anton Bauer Intelligent Battery System

You can equip the camcorder with a special battery mount which the Anton Bauer Corporation has developed for its Intelligent Battery System and Ultralight System.
When the camcorder is used with an Anton Bauer Digital Magnum series battery, the remaining battery capacity is shown numerically in the viewfinder display.

Contact your Sony dealer for more information.

Basic Procedure for Shooting



1 Power the camcorder.

2 Set the FILTER control appropriately for the lighting conditions.

Filter setting	Lighting conditions
1 (3200/ 3000)[a]	Studio halogen lighting (incandescent), sunrise and sunset.
2 (5600K + 1/8 ND)	Sunlight. This setting includes a 1/8 neutral density filter (reducing the exposure by the equivalent of three stops). Use it to prevent hunting[1] or to reduce the depth of field[2].
3 (5600K)	Cloudy or rainy outdoor shooting, and fluorescent lighting.
4 (5600K + 1/64ND)	Sunlight. This setting includes a 1/64 neutral density filter (reducing the exposure by the equivalent of six stops). Use it to prevent hunting[1] or to reduce the depth of field[2].

a) You can switch it to 3000 K by menu setting. (See page 85.)

3 Check the switch settings on the camcorder. *(See pages 11 to 25).*
If there is not sufficient time to check the camcorder settings, you can use “easy mode” by setting the EZ MODE button ON. The camcorder is automatically adjusted to standard settings, and the iris and the white balance are adjusted automatically. *(See page 88.)*

4 Check the settings in the basic menu *(page 78)* and advanced menu *(page 83)*.

5 Check the lens settings *(pages 32 and 33)* and flange focal length adjustment *(page 107)*.

6 Adjust the eyepiece focus, and the contrast and brightness of the viewfinder image *(page 106)*.

7 Check the sound system settings.
- Microphone connections
- Settings on the VCR section

(Continued)

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1) **Hunting:** This occurs if the automatic iris function is not able to reach a stable state, and as a result the image brightness keeps changing, alternately lighter and darker.

2) **Depth of field:** This is the range over which the subject is sharply in focus.

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8 If required, switch on the center marker and/or safety zone (basic menu page 4 and advanced menu page 4) and zebra pattern (ZEBRA button) in the viewfinder image.

9 Adjust the white balance *(page 100)* and black balance *(page 103)*.

10 Turn the focusing ring so that the subject is sharply in focus. It may be convenient to use the EZ FOCUS button for the “easy focus” function *(see page 12)*.

11 Set up the VCR section according to your shooting objectives, then start recording.

- During recording, the REC/TALLY indicator(s) in the viewfinder light(s), and “REC” appears on the viewfinder screen.
- Depending on the setting of the REC TIME switch *(see page 20)*, you can display the total recording time or the length of the current cut on the viewfinder screen.
- You can use the AUDIO LEVEL knob on the front to manually adjust the channel 1 audio level. To do this, you must first set up the VCR section to enable manual adjustment of the audio recording level.

12 To pause recording, press the VTR button again.

Recording

Cassettes for the DSR-300/300P

The DSR-300/300P can use standard-size and mini-size DVCAM and DV series metal tape cassettes. (To ensure high-quality playback, editing, and storage of recorded contents, we recommend using highly reliable DVCAM cassettes).
The following table lists the cassettes that can be used in the DSR-300/300P.

Model name	Size
PDV-64ME/94ME/124ME/184ME	Standard size
PDVM-12ME/22ME/32ME/40ME	Mini size

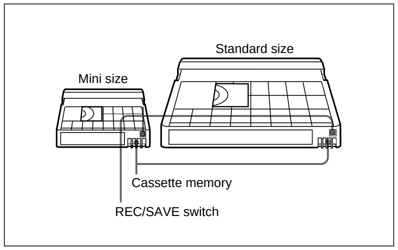
The numbers in the model names show maximum recording/playback time (minutes) for each model. For example, the maximum recording/playback time of the PDV-184ME is 184 minutes.

Notes

- If you insert an incorrect type of cassette, it will be automatically ejected.
- When using a DV cassette, the maximum recording time is reduced to two-thirds of the time indicated on the cassette. For example, up to 40 minutes of recording can be done on a 60-minute DV cassette.

DVCAM cassettes

The following figure illustrates the DVCAM cassette’s appearance.



For ClipLink shooting, a DVCAM cassette including “cassette memory” is necessary. In the cassette memory, data required for editing the recorded video (ClipLink log data) is stored. The DSR-300/300P can record or play back the cassettes with cassette memory of 16 kbits or less.

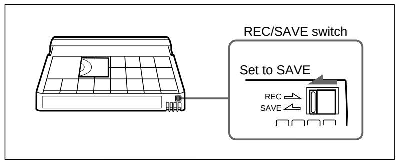
For details of ClipLink log data, see “ClipLink Shooting” (page 65).

Notes on using cassettes

- Before storing the cassette, rewind the tape to the beginning and be sure to put the cassette in its storage case, preferably on end instead of flat on its side. The storage case of a DVCAM cassette is specially designed to eusure a long-period storage of the tape. Storing a cassette in any other condition (not rewound, out of its case, etc.) may cause the video and audio contents to become damaged over time.
- If the cassette memory connector (contact point) becomes dirty, connection problems may occur and cause a loss of functions. Remove away any dust or dirt from this area before using the cassette.
- If the cassette is dropped on the floor or otherwise receives a hard impact, the tape may become slackened and may not record and or play back correctly. For instructions on removing tape slack, see next page.
- Follow the instructions on page 51 to insert a cassette, or the camcorder may be damaged.

Preventing accidental erasure

Set the REC/SAVE switch to SAVE to prevent accidental erasure of recorded contents.



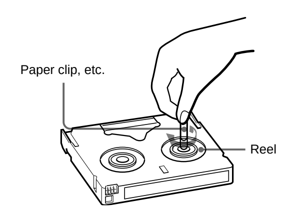
If you insert a cassette into the camcorder when this switch is set to SAVE, the camcorder will not record when you press the REC button.

To enable recording
Set the REC/SAVE switch back to REC.

Checking the tape for slack

Turn the reel gently in the direction shown by the arrow. If the reel does not move, there is no slack. Insert the cassette into the cassette holder, close the cassette holder, and after about 10 seconds take it out.

See page 51 on how to insert a cassette.

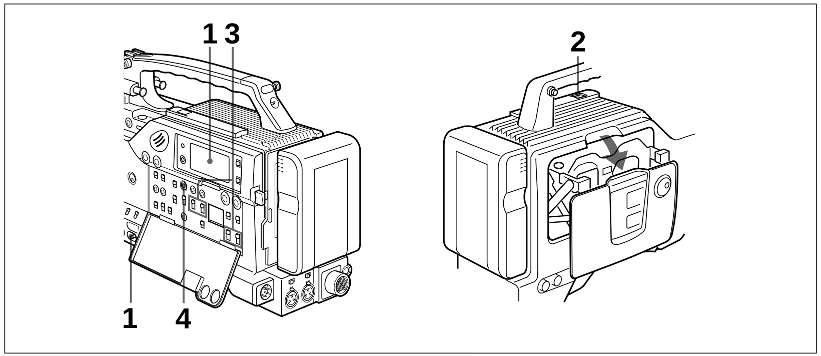


Recording on the Internal VCR

This section describes basic recording operations using the internal VCR.

Notes

- When you will not perform ClipLink shooting, set the ClipLink function to oFF in the VCR menu. *(See page 97 for menu setting and see page 65 for details of ClipLink shooting.)*
- Before shooting, mount or connect any required equipment or accessories and check the power supply. *(See Chapter 2 “Fitting and Connections”.)* Also, it is desireable to make sure for problems in camcorder’s internal operations using the auto-check function. *(See “Using Auto-Check Function —Menu 210” on page 95.)*
- When using a tape recorded by the DSR-300/300P to transfer digital (video/audio/time code) signals at four times normal speed from the DSR-85/85P Digital Videocassette Recorder to the ES-7 EditStation for editing purposes, there must be about at least 40 seconds of recording on the tape before the IN point. To perform editing without problems, it is recommended that you pre-record at least 40 seconds of color bar signals at the beginning of the tape.



1 Set the POWER switch to ON and check the following items in the display window.

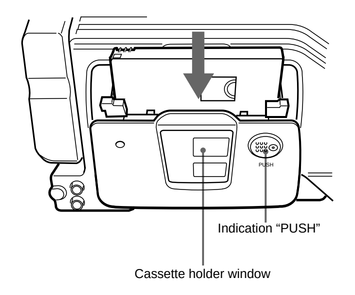
Item to check	Indication and steps	See also
How is the battery?	BATT E [■■■■■■] F: The battery is fully charged. If two or fewer marks appear and the indication is blinking, replace the battery.	“❽ Display window” (page 15)
Has the lithium battery been inserted and is it charged?	Make sure that the Li is not shown in the display window. If it is shown, replace the lithium battery.	“Inserting and Replacing the Lithium Battery” (page 31)
Is there a condensation problem?	Make sure that the “HUMID” indication is not shown in the display window. If it is shown, do not use the equipment until the “HUMID” indication disappears.	“Condensation” (page 116)

2 Press the EJECT button to open the cassette holder, and insert the cassette.

Make sure that the cassette’s REC/SAVE switch is set to REC, then check for tape slack before loading the cassette.

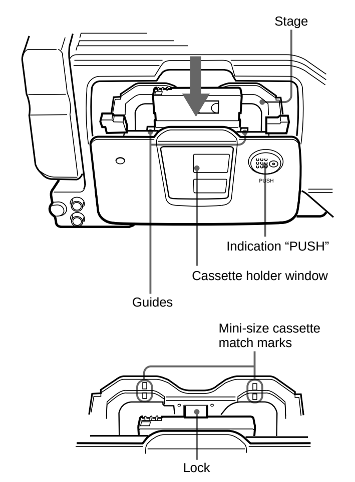
For details on handling cassettes, see “Cassettes for the DSR-300/300P” on page 49.

Inserting a standard-size cassette



Insert the cassette with the cassette window (on the front) facing outward.

Inserting a mini-size cassette



Insert the cassette with the cassette window (on the front) facing outward. Push the cassette between the both guides along the stage until it goes under the lock.

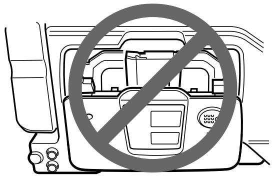
Press on “PUSH” on the cassette holder solidly to close the holder.

(Continued)

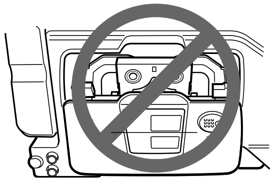
Recording

Notes

- Turn the power on and then insert or eject the cassette.
- When inserting a mini-size cassette, confirm the cassette is under the lock (see the above figure), and then close the cassette holder. If the cassette is not inserted fully under the lock, a stopper will prevent the cassette holder from closing when you press down on it.
- Internal parts of the camcorder may become bent or otherwise damaged if you attempt to close the cassette holder after inserting a mini-size cassette in the wrong direction (such as with the cassette turned backside front so the reel holes face the cassette holder window or with the cassette turned sideways so that a short side enters first).
- If CL appears in the display window when the cassette is loaded, it means that data has already been recorded into the cassette memory. If you record under this condition whether the ClipLink function is available or not, the existing cassette memory data will be overwritten. To avoid this, insert a new cassette.
- After inserting the cassette, close the cassette holder solidly by pressing on the "PUSH" indication on the holder. Unless the cassette holder is closed solidly, the tape will not be loaded and the tape operation buttons will not function. If you find the tape operation buttons inoperable, press on the "PUSH" indication again to make sure that the cassette holder is solidly closed.

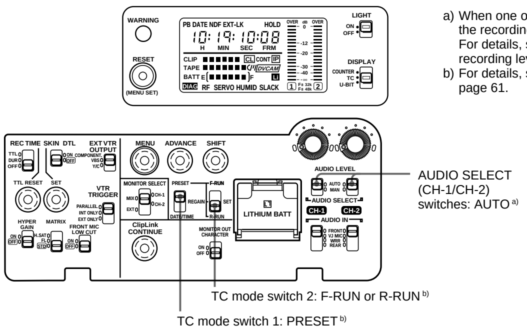


Do not insert cassette sideways.



Do not insert cassette backside front.

3 Make the switch settings shown in the figure below.


AUDIO SELECT
(CH-1/CH-2)
switches: AUTO a)
TC mode switch 2: F-RUN or R-RUN b)
TC mode switch 1: PRESET b)

a) When one of these switches is set to MANUAL, the recording volume can be manually adjusted. For details, see "Manually adjusting audio recording level" on page 53.

b) For details, see "Setting the Time Code Value" on page 61.

4 Display menu 212 and select the audio recording mode (two-channel mode or four-channel mode).

For menu operation, see "Selecting Audio Recording Mode — Menu 212" (page 97).

Note

One of the following warning indications appears in the display area when you change the audio mode setting during recording pause.

Warning indication	Status
Fs 48K (flashes four times per second)	Attempting to switch from 32-kHz mode (four-channel mode) to 48-kHz mode (two-channel mode).
Fs 32K (flashes four times per second)	Attempting to switch from 48-kHz mode (two-channel mode) to 32-kHz mode (four-channel mode).

The recordings at switching points prevent editing. Avoid changing the audio mode once you have started recording.

5 Set up the camcorder to suit your recording objectives, and press the VTR button on the camcorder or lens.

Recording begins when the TALLY indicator stays lit after blinking for a moment.

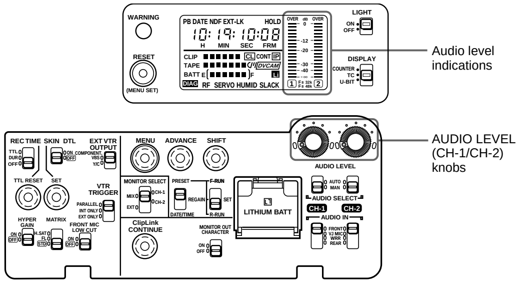
During recording, the tape transport buttons (EJECT, REW, F FWD, PLAY, and STOP) cannot be used.

Operation	Step
To view image being shot	• Look into the viewfinder. • Connect a video monitor to the MONITOR OUT connector or S VIDEO OUT connector.
To listen to audio track being shot	Connect an earphone to the EARPHONE connector or listen to the audio from the speaker.
To pause recording	Press the VTR button on the camcorder or lens. *For instructions on continuing to record after a pause, see "Back Space Editing" (page 55).*
To stop recording	Press the VTR button on the camcorder or lens, then press the STOP button. With this state, it is impossible to start back space editing.
To remove the cassette	Check that the power is on, then press the EJECT button to open the cassette holder and remove the cassette. Close the cassette holder.

Manually adjusting audio recording level

1 In step **3** above ("Recording on the Internal VCR"), set the AUDIO SELECT (CH-1/CH-2) switches to MANUAL *(see page 52)*.

2 While checking the audio level in the display window, turn the AUDIO LEVEL (CH-1/CH-2) knob for the channel being used for microphone or wireless microphone system connection (CH-1 or CH-2) so that the maximum audio level is under 0 dB.



When the battery is getting exhausted

When the battery is getting exhausted, the BATT indication in the display window blinks once a second *(see page 16)*. Replace the battery with a charged battery immediately. **If you continue to use the low battery,** the BATT indication will blink four times a second, and the operation will stop.

For description of how to replace batteries, see "Power Supply" on page 44.

Notes

- Turn the POWER switch OFF before replacing the battery.
- If using two NP-1B batteries, be sure to replace both batteries at the same time.

Recording on an External VCR

Set the VTR TRIGGER switch in the following way. (You can change the setting during recording.)

Simultaneous recording on the external and internal VCR: PARALLEL

Recording on the external VCR: EXT ONLY

When the VTR TRIGGER switch is set to INT ONLY, the camcorder controls only the internal VCR even if an external VCR is connected.

For information about connectable VCRs, see "Connecting an External VCR" (page 43).

Recording on the internal and external VCRs simultaneously

1 Set the switches as shown in the table below.

Switch	Setting
VTR TRIGGER switch	PARALLEL
EXT VTR OUTPUT switch	Set depending on the connected VCR.
Audio input level setting switch on the connected VCR	–20 dB

2 Put the external VCR in the recording pause mode.

3 Press the VTR button on the camcorder or lens.

The both VCRs start recording simultaneously.

To pause recording, press the VTR button on the camcorder or lens again.
The both VCRs go into the recording paused state.

If either VCR comes to end of tape during recording, one VCR stops at the end of the tape, and the other will continue recording. To restart simultaneous recording, perform the following.

When the internal VCR has run out of the tape: Change the cassette, and press the VTR button on the camcorder or lens.

When the external VCR has run out of the tape: Change the cassette, and start recording with the controls on the external VCR.

Note

After replacing the cassette on the external VCR, do not press the VTR button on the camcorder or lens, as this will pause the internal VCR.

To operate either VCR during recording, change the VTR TRIGGER switch setting. Both VCRs continue recording at the time of switching.

Setting to INT ONLY: The camcorder can operate only the internal VCR.

Setting to EXT ONLY: The camcorder can operate only the external VCR.

Recording on the external VCR only

1 Set the VTR TRIGGER switch to EXT ONLY.

2 Use the controls on the external VCR to put it in the recording paused state.

3 Press the VTR button on the camcorder or lens.

The external VCR starts recording.

To pause recording

Press the VTR button on the camcorder or lens.

Using the viewfinder to see playback pictures

For the internal VCR: Press the PLAY button.

For the external VCR: Press the RET button on the lens when the internal VCR is in recording or no cassette is inserted in the internal VCR. While holding it down, you can see the return video from the external VCR.

Back Space Editing

This section describes the steps for recording several scenes continuously.

1 Follow steps **1** to **5** *(pages 51 to 53)* in the procedure "Recording on the Internal VCR" to begin recording.

To continue the time code that has been recorded on the tape, set the TC mode switch 2 to R-RUN in step **3** *(page 52)*.

For details of time codes, see "Setting the Time Code Value" on page 61.

2 When you have finished recording a scene, press the VTR button on the camcorder or lens.

This pauses the recording operation.

Note

Do not do any of the following before the next scene is shot as it will interrupt the recording (the recording will not be continuous).

- Remove the cassette.
- Transport the tape (play, rewind, fast forward).
- Press the STOP button.
- Replace the battery when the camcorder is powered.

3 When you are ready to shoot the next scene, again press the VTR button on the camcorder or lens.

This restarts the recording operation.

4 Repeat steps **2** and **3** for each scene to be shot.

Operation	Step
Restart an interrupted recording (see step **2** above)	See next section "Starting Back Space Editing at Any Tape Position".
Check the recorded contents	See "Checking the Record Contents Immediately After Shooting —Recording Review" on page 58.
Stop recording	Press the VTR button on the camcorder or lens, then press the STOP button.

If there is a long period before shooting the next scene

Once put the camcorder into recording pause mode, it waits a certain (user-definable) period of time and then automatically switches to standby-off mode. When the camcorder is in standby-off mode, it takes time for the recording to start after pressing the VTR button.

For details on setting the timeout value for automatic switching to standby-off mode, see "Setting Standby-On Period — Menu 207" on page 94.

Starting Back Space Editing at Any Tape Position

This section describes the steps for insert a new scene at any desired position on the tape.
The following steps can also be used to restart recording after an interruption has occurred.

1 Perform step **1** *(page 51)* in "Recording on the Internal VCR".

2 Insert the cassette containing the previous recording.

3 Perform steps **3** and **4** *(pages 52 and 53)* in "Recording on the Internal VCR".

To continue from the last time code of the previous recording, set TC mode switch 1 to REGEN.

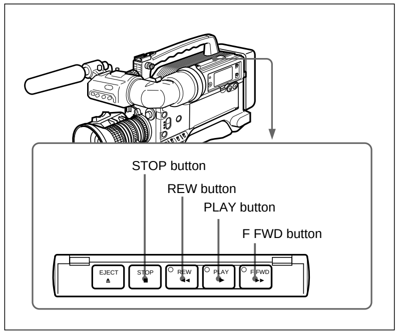
For details about time codes, see "Setting the Time Code Value" on page 61.

4 Press the PLAY button.

The recorded contents are displayed on the viewfinder screen.

Operation at playback	Step
Fast forward the tape	Press the F FWD button.
Rewind the tape	Press the REW button.

(Continued)



5 Press the STOP button when the tape reaches the position where the new recording will start *(see the figure above).*

This stops the tape.

6 Press the RET button on the lens.

This rewinds the tape slightly and runs it until the continue point (specified by step **5**), then sets the camcorder to recording pause state.

7 Press the VTR button on the camcorder or lens.

This starts recording.

The edit search function enables you to search for the continue position. For details, see next section.

Note

If you turn the POWER switch off during recording, or when recording is paused, the camcorder automatically goes through its shut-down sequence, then powers off. When you next turn the POWER switch on, the camcorder automatically finds the point at which recording ended, and sets itself up so that you can carry in with continuous recording. Note that this operation takes several seconds: do not turn the POWER switch is turned off or replace the battery during this interval, as the automatic recording continuity will be lost.
Note also that the recording continuity is lost in the following cases.

- If the POWER switch is turned on and off repeatedly.
- If the camcorder is left powered off for several hours.
- If the camcorder is subject to severe vibration while powered off.
- If for any other reason the automatic recording continuity function is unable to operate correctly.
- If the lithium battery (CR2032) is exhausted, or if no lithium battery has been fitted.

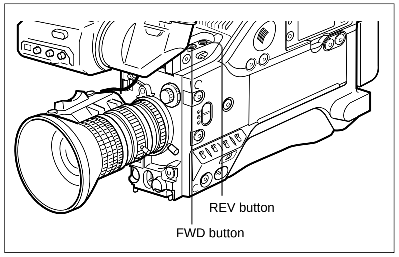
Using the Edit Search Function While Back Space Editing

You can use the edit search function to find the desired tape location when continuing to record from any other location on the tape. Press and hold one of the EDIT SEARCH buttons to activate the search playback function for as long as you hold down it.

1 Turn on the power, then insert a cassette into the VCR.

2 Perform steps **2** to **12** in “Basic Procedure for Shooting” *(page 47).*

3 Press and hold either of the EDIT SEARCH buttons (REV or FWD).



The tape is moved in reverse or forward search mode for as long as you hold down the REV or FWD button, and the image is shown in the viewfinder.

To change the playback speed
Press the REV or FWD button down firmly into the inner position to make the tape move at the faster speed. Press the button down lightly to make the tape move at the slower speed.

Note

Do not shut off the power while using the edit search function. The VCR may not be able to find the continue point.

4 Release the REV or FWD button when you find the tape location where you wish to continue shooting.

The VCR enters recording pause mode.

5 Press the VTR button on the camcorder or the lens.

The VCR starts recording.

Using the Freeze Mix Function

The freeze mix function superimposes a freeze-frame image of a previously recorded shot on the shooting image displayed on the viewfinder screen.
You can use this function to easily frame a subject within the same framework from a previous shot.

Note

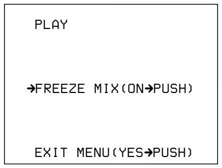
When the camcorder is in EZ mode, the freeze mix function is disabled. Press the EZ MODE button to release the EZ mode beforehand. *(See page 13.)*

1 Connect a color monitor to the MONITOR OUT connector and set the MONITOR OUT CHARACTER switch to ON. (It is not necessary to set the MONITOR OUT CHARACTER switch to ON when using only the viewfinder for freeze mix operation.)

2 Perform steps **2** to **10** from “Basic Procedure for Shooting” *(page 47).*

3 Play back the tape on which the image to be used for framework alignment has been recorded, and press the MENU switch to ON position.

The following indication appears on the screen.

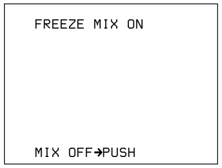


```
PLAY


➔FREEZE MIX(ON➔PUSH)


EXIT MENU(YES➔PUSH)
```

For details of the playback operation, see page 58.

4 Press the MENU dial when you see the image you want to freeze.

The frozen playback image is displayed, mixed with the shooting image, in monochrome. The indication “FREEZE MIX ON” appears on the screen.



```
FREEZE MIX ON




MIX OFF➔PUSH
```

To release the freeze mix mode, press the MENU dial again.

To change the freeze-frame image
Press the PLAY button.
Use the tape transport buttons to find the desired image and then perform step **4** again.

5 Once you have framed your subject, press the MENU dial to cancel the freeze mix function.

6 Find the recording start point or insert a new cassette for recording, then begin recording.

Note

If you use the tape transport buttons during back space editing, the back space editing mode will be stopped. When you were using the ClipLink function at shooting, if you simply restart the recording you will lose any ClipLink data that was recorded. To avoid this, press the ClipLink CONTINUE button before restarting recording.

Playback — Checking Recorded Contents

Checking the Recorded Contents Immediately After Shooting — Recording Review

Immediately after shooting, you can use the recording review function to automatically rewind and play back the last 2 to 10 seconds of the recording to check the recorded contents.

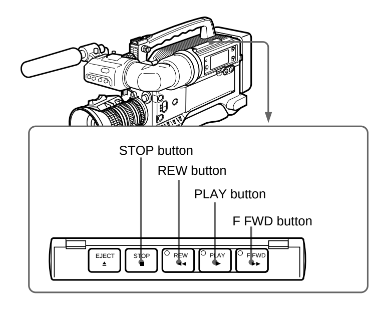
Performing recording review

With recording paused, press the RET button on the lens.

Depending on how long you hold down the button, the tape is automatically rewound over the last 2 to 10 seconds of the recording, and then this last part of the recording is shown in the viewfinder. You can also listen to the recorded sound via an earphone or the speaker. After the recorded part is played back, the camcorder is automatically returns to the pause state.

Notes

- During recording review, do not turn the POWER switch off. The camcorder may not be able to find the continue point.
- If you press the VTR button on the camcorder or lens during recording review, the camcorder stops the recording review and starts recording. In this case (when ClipLink mode is oFF), it is impossible to start back space editing.



Operation	Step
Fast forward the tape	Press the F FWD button.
Rewind the tape	Press the REW button.
Stop the tape	Press the STOP button.

Note

If two or more series of Index Pictures are recorded separately on the tape, they may be played back at back space editing points.

For details about Index Pictures, see "ClipLink Shooting" (page 65).

Viewing Monochrome Playback in the Viewfinder

You can view a monochrome playback of the recording in the viewfinder.

1 Turn the power on.

2 Load a cassette.

3 Press the PLAY button.

This starts playback, during which a monochrome playback of the recording is shown in the viewfinder.

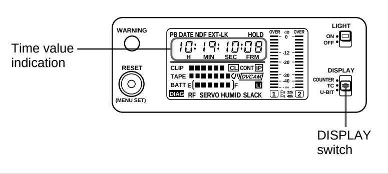
Viewing Color Playback

Using a color television or color video monitor, you can view a color playback (with no playback adaptors).

Connect a color television or color video monitor to the MONITOR OUT connector or the S VIDEO OUT connector.
See the previous section "Viewing Monochrome Playback in the Viewfinder" for playback operation.

Setting Time Values

The camcorder uses three types of time values: counter values, time code values, and user bits.
The time value is displayed in the viewfinder screen and in the display window.



Use the DISPLAY switch to switch time value indications.

Type of time value	DISPLAY switch setting
Counter of tape transport time	COUNTER
Time code	TC
User bits	U-BIT

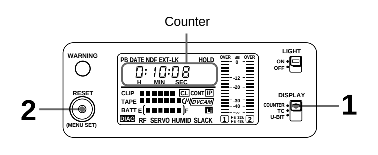
Note

The time code and user bits cannot be displayed if the tape does not have time code and/or user bits recordings or if the time code was recorded using a non-compatible method.

For details of the time value indication in the viewfinder, see page 74.

Resetting the counter

The counter value shows the tape's running time in hours, minutes, seconds, and frames format. Before starting a tape, perform the following steps to reset the counter.



1 Set the DISPLAY switch to COUNTER.

The time value indication in the display window shows the current counter value.

2 Press the RESET/(MENU SET) button.

This resets the counter shown in the viewfinder and display window as "0:00:00:00".

The counter value starts advancing as the tape is transported. It shows negative values if the tape is rewound past the point where the counter was reset.

Note

Discontinuous recording in the tape may cause the counter to malfunction during playback.

Displaying the date/time

The camcorder automatically records the real time of the built-in clock on the tape in addition to time codes and video/audio signals.
Perform the following steps to display the date or time instead of the time value.

1 Confirm the following.

Parts to confirm	State
Display window	The VCR menu is not displayed.
TC mode switch 1/2	Set to the position other than PRESET/SET.

2 Set the DISPLAY switch to TC or U-BIT.

3 Press the SHIFT button.

While pressing the SHIFT button, the date or time is displayed at the location of the time value indication.

DISPLAY switch setting	Indication
TC	Time
U-BIT	Date

For description of how to set the built-in clock, see "Setting the Real Time Clock and Calendar — Menu 101" on page 93.

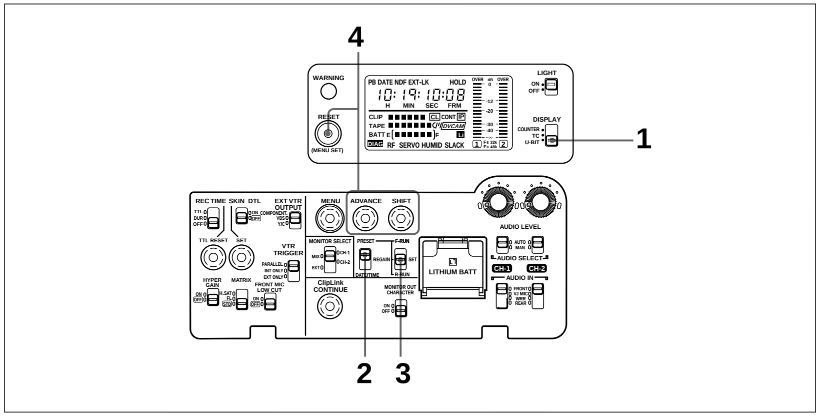
Setting Time Values

Setting the User Bit Value

You can set the user bits as eight-digit hexadecimal values (base 16) to have the date, time, scene number, and other information inserted into the time code.
When using both the time code and user bits, set up the user bits first. If you set the time code first, the internal time code generator will remain stopped while you set the user bits, which will set the time value off from the original setting.

Note

Setting the user bit value may be disallowed in some cases at ClipLink shooting. For details, see step **4** on page 66 in “ClipLink Shooting”.


4
1
2
3
WARNING
RESET
(MENU SET)
LIGHT
ON
OFF
DISPLAY
COUNTER
TC
U-BIT
MENU
ADVANCE
SHIFT
LITHIUM BATT
AUDIO LEVEL
AUDIO SELECT
AUDIO IN
PRESET
F-RUN
REGAIN
SET
R-RUN
ClipLink CONTINUE

1 Set the DISPLAY switch to U-BIT.

The user bits indication appears.

2 Set the TC mode switch 1 to PRESET.

3 Set the TC mode switch 2 to SET.

This causes the leftmost digit in the user bits indication to start blinking.

4 Set the user bits.

Operation	Step
Select a digit	Press the SHIFT button. Each time you press the SHIFT button, the next digit to the right starts blinking.
Change a value	Press the ADVANCE button. Each time you press the ADVANCE button, the displayed value is incremented to F and returns to 0.
Reset	Press the RESET/(MENU SET) button. The display returns to “00 00 00 00”.

Hexadecimal digits A to F are displayed as follows.

Hexadecimal digit	A	B	C	D	E	F
Display	A	b	C	d	E	F

5 Perform step **6** in “Setting the Time Code Value” on page 62.

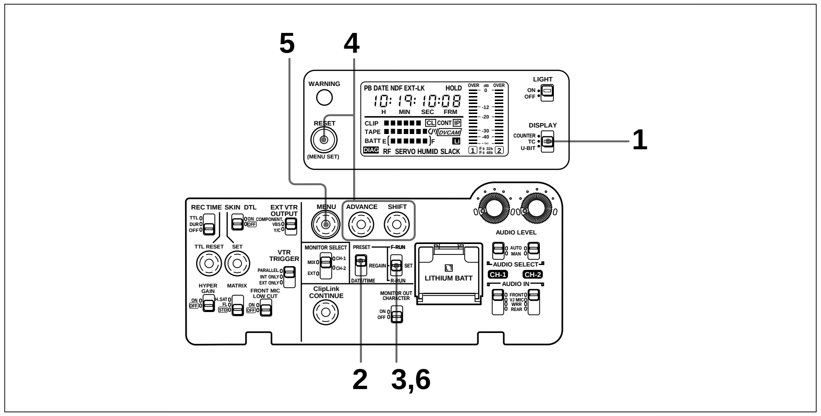
Setting the Time Code Value

This section describes the steps for setting time code recording methods for particular shooting conditions and setting initial values.
When using both the time code and user bits, **set up the user bits first.** If you set the time code first, the internal time code generator will remain stopped while you set the user bits, which will set the time value off from the original setting.

For details of setting user bits, see “Setting the User Bit Value” on previous page.

Note

Setting the time code value may be disallowed in some cases at ClipLink shooting. For details, see step **4** on page 66 in “ClipLink Shooting”.


5
4
1
2
3,6
WARNING
RESET
(MENU SET)
LIGHT
ON
OFF
DISPLAY
COUNTER
TC
U-BIT
MENU
ADVANCE
SHIFT
LITHIUM BATT
AUDIO LEVEL
AUDIO SELECT
AUDIO IN
PRESET
F-RUN
REGAIN
SET
R-RUN
ClipLink CONTINUE

1 Set the DISPLAY switch to TC.

2 Set the TC mode switch 1 to PRESET.

3 Set the TC mode switch 2 to SET.

This causes the leftmost digit in the time code display to start blinking.

4 Set the time code initial value.

Operation	Step
Select a digit	Press the SHIFT button. Each time you press the SHIFT button, the next digit to the right starts blinking.
Change a value	Press the ADVANCE button. Each time you press the ADVANCE button, the displayed value increases.
Reset	Press the RESET/(MENU SET) button. The display returns to “00:00:00:00”.

The time code value can be set anywhere in the range of “00:00:00:00” to “23:59:59:29” (DSR-300) or “23:59:59:24 (DSR-300P).

5 For the DSR-300, use menu 204 to select the frame mode.

Operation	Step
Adjust the discrepancy bestrewn time code value and real time	Select the drop-frame mode.
Need not adjust the discrepancy between time code value and real time	Select the non-drop-frame mode.

For more information about the drop-frame/non-drop-frame mode, see “Drop-frame mode (for DSR-300 Only)” on next page.

For details of menu operations, see page 93.

(Continued)

6 Use the TC mode switch 2 to set the desired running mode.

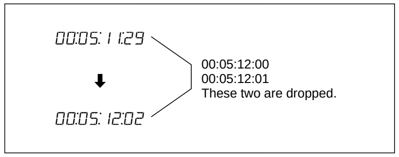
Operation	Setting
Time code advances freely regardless of the VCR's current operation mode.	F-RUN
Time code value advances only while recording.	R-RUN

If you select F-RUN, the time code starts advancing immediately.

Drop-frame mode (for DSR-300 Only)

In the NTSC standard, the time code value is based on 30 frames per second, but the exact video frame frequency is in fact 29.97 frames per second and the real time, or 18 frames per 10 minutes.
Drop-frame mode corrects for this by skipping two frame counts at the beginning of every minute which is not a multiple of ten.

Example: When the minute value is changing from 11 to 12



In non-drop-frame mode, however, no frame counts are omitted, and there is a gradual deviation of the time code from real time.

Making the time code continuous at back space editing

Set the TC mode switch 2 to R-RUN and start back space editing.

For operation of back space editing, see "Back Space Editing" on page 55.

Restarting an interrupted recording

Perform the following steps to make the time code continuous when the recording has been interrupted or when the cassette tape has been removed from the camcorder between shootings.

1 Set the TC mode switch 1 to REGEN.

Time code advance is automatically set to R-RUN even if the TC mode switch 2 has been set to F-RUN.

2 Perform steps **1** to **6** of "Starting Back Space Editing at Any Tape Position" on page 55.

When the camcorder is at the recording pause state, the recorded time code is read from the tape and synchronized to the internal time code generator.

3 Press the VTR button on the camcorder or lens to restart back space editing.

Setting the time code to the real time clock and calendar

Set the TC mode switch 1 to DATE/TIME.

This synchronizes the time code generator to real time (recorded in the user bits) and date (recorded in the time code), using the real time clock and calendar set in menu 101.

Once you set this switch to DATE/TIME position, it is not possible to retrieve the previous value (user bits and time code) in the time code generator.

For how to set the real time clock and calendar, see "Setting the Real Time Clock and Calendar — Menu 101" on page 93.

Synchronization With External Time Code Signals — Gen-Lock

To edit and compile a recording that is shot using multiple camcorders, it is necessary to synchronize the video and time code of the various camcorders (by gen-lock).

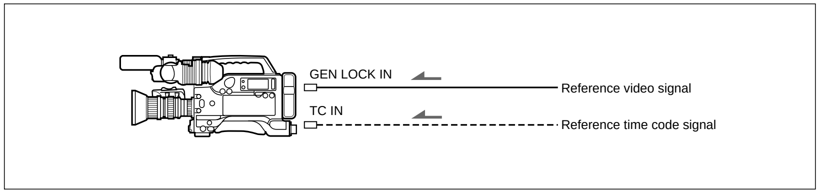
Note

Synchronization with external time code signals (by gen-lock) may be disallowed in some cases at ClipLink shooting. For details, see step **4** on page 66 in "ClipLink Shooting"

Connection for gen-lock

Connect the reference video and time code signals to the camcorder as shown below.

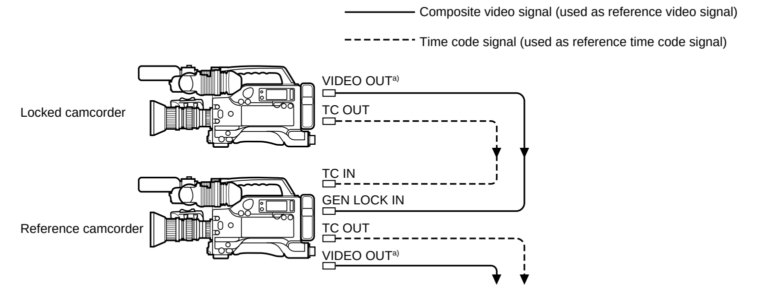
Locking the video and time code signals to an external reference signal



Locking the video and time code signals to another camcorder's video and time code signals

Using one camcorder as reference, to its video and time code signals, lock the other camcorders' video and time code signals.

If the reference camcorder is gen-locked to an external reference signal, any other connected camcorders are gen-locked to the same reference signal.


Composite video signal (used as reference video signal)
Time code signal (used as reference time code signal)
Locked camcorder
VIDEO OUT a)
TC OUT
TC IN
GEN LOCK IN
Reference camcorder
TC OUT
VIDEO OUT a)

a) The output signal from the MONITOR OUT connector on the DSR-300/300P may discontinue when switching the operation between recording and playback. Use the output signal from the VIDEO OUT connector.

Setting Time Values

Locking the internal time code generator to the reference time code

Perform the following steps to synchronize the camcorder's internal time code generator to an external time code.

1 Set the TC mode switch 1 to PRESET.

2 Set the TC mode switch 2 to F-RUN.

3 Connect a reference time code and video signal to the camcorder.

For connections, see the previous section "Connection for gen-lock".

"EXT-LK" will be displayed in the display window. The internal time code generator will maintain its externally synchronized state even after you disconnect the reference time code signal. The precision of this synchronization (phase alignment) of time codes depends on the precision of the camcorder's sync signal generator.

Notes

- After setting up external synchronization, allow a few seconds for the camcorder's sync signal generator to stabilize before recording.
- Only the time code can be externally synchronized. User bits cannot be externally synchronized.
- If you turn the POWER switch on or off while the camcorder is operating under external synchronization, synchronization precision will be reduced.

ClipLink Shooting

The ClipLink function is intended to be used at various stages from recording to editing. When you record using this function, Index Pictures are automatically recorded along with the time code, scene number, and other data, all of which make for more efficient editing.

For an overview of the ClipLink function, refer to the supplied "ClipLink™ Guide".

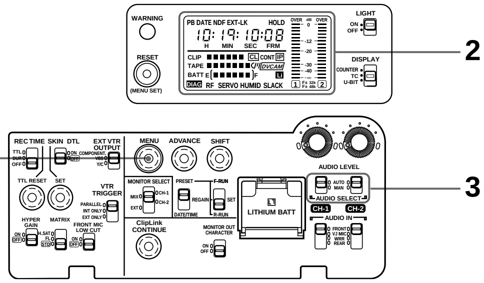
To record Index Pictures, the optional DSBK-301 Index Picture Board is required.

Note

On the DSR-300/300P, you can also use the ClipLink function without recording Index Pictures. However, if you perform ClipLink shooting on the DSR-300/300P without fitting the optional DSBK-301, the recorded tape may cause malfunction at ClipLink continue on the DSR-1/1P.

When you perform ClipLink shooting in a system containing the DSR-1/1P and DSR-300/300P, fit the optional DSBK-301 to the DSR-300/300P.

On how to attach the DSBK-301, see the operating instructions for the DSBK-301.



1 Turn the power on and perform steps **2** to **10** in "Basic Procedure for Shooting" *(page 47).*

2 Perform the first two steps *(page 50)* in "Recording on the Internal VCR". Check the following points.

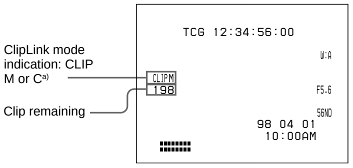
Check point	Method
Check the ClipLink function is on (or set it to on).	See "Selecting the ClipLink Function —Menu 211" under "Setting on the VCR Section —VCR Menu" (page 91).
Check whether or not the cassette includes cassette memory. (The camcorder supports cassettes with up to 16 Kbits of cassette memory.)	C/II appears in the display window when the loaded cassette includes cassette memory. (The ClipLink function cannot be used unless C/II appears in the display window.)
Make sure that the lithium battery has been correctly inserted and is not used up.	Li appears in the display window if the lithium battery has not been inserted or is used up.

CLIP and IP appear in the display window.

Display	Meaning
CLIP	The camcorder is in ClipLink mode.
IP	The camcorder is in ClipLink mode and can record Index Pictures (when the DSBK-301 is fitted).

(Continued)

The following display appears on the viewfinder screen.



a) For details, see “Basic menu page 5” (page 80).

To record the cassette name/number
Access basic menu page 5 to specify a name or number for the inserted cassette *(see page 80).*

Notes

- If you use a cassette that contains data recorded via a different VCR, when you enter a cassette name/number in the cassette memory, you may lose any data that was previously written to the cassette memory. Also, if you use a cassette that contains data recorded in ClipLink mode on the camcorder for recording on a different VCR, you may lose any data that was previously written to the cassette memory.
- When you power the camcorder or insert a cassette, black squares (■) blink in the place of the clip remaining indication in the display window (during this, the cassette memory data is being checked). Start recording after the blinking ends, or the ClipLink function will be disabled.
- When CL appears in the display window, it means that data has already been recorded into the cassette memory. If you record under this condition whether the ClipLink function is available or not, the existing cassette memory data will be overwritten. To avoid this, you can either insert a new cassette or follow the procedure for appending cassette memory data, as described in the section “Resuming Recording in ClipLink Mode” *(page 69).* If the CL is flashing, it means abnormality of the cassette memory. In this case, it is impossible to continue recording from that data on ClipLink mode.
- The number of recordable clips varies with cassette memory capacity. Up to 45 clips (Index Pictures) can be recorded in a 4-Kbit cassette memory and up to 198 clips (Index Pictures) can be recorded in a 16-Kbit cassette memory.

3 Set the AUDIO SELECT (CH-1/CH-2) switch to AUTO or MANUAL *(see page 52).*

4 Press the VTR button on the camcorder or the lens.

Recording begins when the TALLY indicator stays lit after blinking for a moment.
The camcorder enters ClipLink continue mode (in which back space editing is possible using ClipLink function) and indication **CONT** appears in the display window.

During recording, the time code (HH:MM:SS format) at the recording start (Rec IN) point is recorded into the camcorder’s internal memory. Index Pictures are also recorded if you use the DSBK-301.

Note

When **CONT** appears, regardless of the setting of the TC mode switch 1, the time code generator automatically enters REGEN mode. Consequently, you cannot freely specify a time code nor can you use the external synchronization (genlock) function.

5 To stop recording, press the VTR button on the camcorder or the lens.

This sets recording pause mode.
The time codes (HH:MM:SS) for the current clip (contents between the Rec IN and Rec OUT points) are recorded along with the scene number (as scene 001) in the cassette memory. The last Index Picture in the recorded scene is also recorded when the DSBK-301 is fitted.

Note

While data is being recorded in the cassette memory, cutting the power supply or opening the cassette holder is disallowed. If you turn the POWER switch off or press the EJECT button, black squares (■) blink in the place of the clip remaining indication in the display window. When the data has been recorded, the power supply is cut or the cassette is ejected.

To continuously record the next scene
Repeat steps **4** and **5**.
The scene number will be automatically incremented from the previous number.

You can set or clear an “NG” designation for the previously recorded scene before shooting the next scene.

If you have stopped the recording, see “Resuming Recording in ClipLink Mode” (page 69).

Notes

- During recording pause, pressing the STOP/PLAY/F FWD/REW buttons, performing edit search, or ejecting the cassette will interrupt the ClipLink shooting. With this state, it is impossible to start back space editing using ClipLink function. (The ClipLink continue mode is canceled and indication **CONT** in the display window disappears.) To perform back space editing at the recording stop position, press the ClipLink CONTINUE button before resuming recording. If you do resume recording without pressing this button first, the previous recorded data (and Index Pictures) will be overwritten or otherwise invalidated.
- Each time you press the STOP button, the number of remaining clips is decremented by one. If you resume recording with the same VCR, the number of remaining clips is automatically incremented by one.

For details, see “Resuming Recording in ClipLink Mode” (page 69).

- Do not unplug the power supply connector (connected to a battery pack or AC outlet) while the POWER switch is still set to ON, as this may cause the ClipLink function to operate abnormally. Be sure to set the POWER switch to OFF before disconnecting the power supply.

Setting Editing Points While Shooting

You can use the TAKE button to record a time code for a Cue point or a Mark IN/OUT point.

Setting Mark IN/OUT points as you shoot

The following data is recorded onto the cassette when you specify Mark IN/OUT points while shooting continuously at length, instead of during linked recording of each scene.

- Time codes (HH:MM:SS) for Mark IN/OUT points
- Scene number: The scene number counter is automatically incremented with each Mark OUT point specification.
- NG specification, cassette name/number
- Index Pictures for all Mark IN points (when the DSBK-301 is fitted): these are recorded each time recording is stopped.

Note

The time codes for Rec IN/OUT points are not recorded.

Perform the following procedure.

1 Perform steps **1** to **3** from “ClipLink Shooting” *(pages 65 and 66).*

2 Access basic menu page 5 and perform the following operations.
  1) Set MARK/CUE to MARK.
  The ClipLink mode indication “CLIP M” appears on the viewfinder screen.
  2) Set the cassette name or number if necessary.

For details of menu operations, see “Basic Menu Operations” (page 78).

3 Press the VTR button on the camcorder or lens.

The camcorder starts recording, and the REC/TALLY indicator(s) light(s) in the viewfinder.

(Continued)

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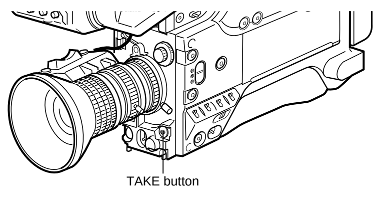
ClipLink Shooting

4 Press the TAKE button when you find a shot where you would like to set a Mark IN point.



The TAKE/TALLY indicator (orange) lights in the viewfinder and “TAKE” appears on the screen.

5 Press the TAKE button when you find a shot where you would like to set a Mark OUT point.

The TAKE/TALLY indicator (orange) goes out in the viewfinder and the “TAKE” disappears from the screen.
At this time, the time code (HH:MM:SS) at the Mark IN/OUT point for scene 001 is recorded to the camcorder’s internal memory, and then recorded to the cassette memory.

To set/clear NG
If you press the NG button before you set the next Mark IN point, the previous scene will be designated as “NG” (“NG” appears on the screen). Once NG has been set, you can cancel it by pressing the NG button again before you set the next Mark IN point (the “NG” on the screen disappears).

6 Repeat steps **4** and **5** as needed to record time codes at Mark IN/OUT points, scene numbers, and NG designations to cassette memory.

The scene number is automatically incremented each time you specify a Mark IN point.

7 To finish shooting, press the VTR button on the camcorder or lens.

This stops the recording operation.
The Index Pictures of each Mark IN point are recorded onto the tape (when the DSBK-301 is fitted).

Setting Cue points as you shoot

The following data is recorded onto the cassette when you specify a Cue point to highlight a scene.

- Time codes (HH:MM:SS) for Rec IN/OUT points
- Time codes (HH:MM:SS:frame) for Cue points
- Scene number: The scene number counter is automatically incremented with each Rec OUT point specification.
- NG designation, cassette name/number (if set from the camcorder)
- Index Pictures for all Rec IN points (when the DSBK-301 is fitted): these are recorded each time recording is stopped.

Perform the following procedure.

1 Perform steps **1** to **3** in “ClipLink Shooting” *(pages 65 and 66).*

2 Access basic menu page 5 and perform the following operations.
1) Set MARK/CUE to CUE.
The ClipLink mode indication “CLIP C” appears on the viewfinder screen.
2) Set the cassette name or number if necessary.

For details of menu operations, see “Basic Menu Operations” (page 78).

3 Press the VTR button on the camcorder or lens.

The camcorder starts recording, and the REC/TALLY indicator lights in the viewfinder.

4 Press the TAKE button when you find a shot where you would like to set a Cue point.

The “CUE” indication appears (for about 1 second) on the viewfinder screen. At this point, the time code (HH:MM:SS:frame) at the Cue point is recorded into the cassette memory.

5 Repeat step **4** to specify more Cue points.

6 To finish shooting, press the VTR button on the camcorder or lens.

This stops recording operation.

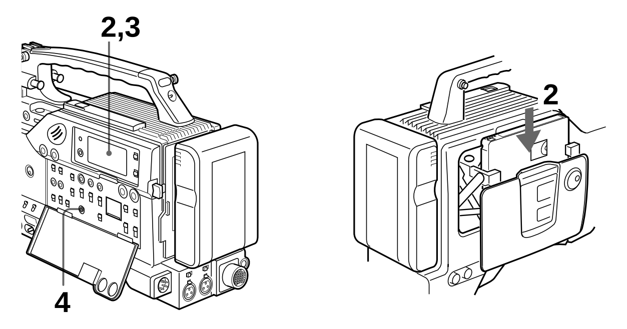
Time codes (HH:MM:SS) and scene number (scene 001) are recorded to the cassette memory and the Index Picture of the Rec IN point is recorded onto the tape (when the DSBK-301 is attached).

Resuming Recording in ClipLink Mode

During recording pause in ClipLink mode, pressing the STOP/PLAY/F FWD/REW buttons, performing edit search, or ejecting the cassette will interrupt the ClipLink shooting. With this state, it is impossible to start back space editing using ClipLink function. (The ClipLink continue mode is canceled and indication **CONT** in the display window disappears.) If you resume recording on the same cassette, the previously recorded data will be overwritten.

You can avoid this and continue recording in ClipLink mode from the previous recording stop point by performing the following steps.

Note
If you stop recording during the first ten seconds of recording, you may not be able to use these steps to continue recording in ClipLink mode.



1 Perform step **2** to **10** in “Basic Procedure for Shooting” *(page 47)* and step **2** *(page 51)* in “Recording on the Internal VCR”.

2 Insert a cassette if one is not already loaded.

The CL and C/// indications should appear in the display window.

Note
If the CL is flashing, it means abnormality of the cassette memory. In this case, it is impossible to continue recording from that data on ClipLink mode.

3 Check the following points.

Check point	Result and response
CLIP and IP (when the DSBK-301 is fitted) appear in the display window	If these indications do not appear in the display window, access the VCR menu and set ClipLink function to on (see page 97).
Remaining clips	Make sure there are enough capacity for recording clips (see page 17).

(Continued)

4 Press the ClipLink CONTINUE button.

The tape remaining indication in the display window flashes as the camcorder automatically searches the recording stop point. When it finds the recording stop point, it stops and enters recording pause mode.
Once it has stopped, check that the **CONT** indication appears in the display window.

To find the recording stop point efficiently
If you press the ClipLink CONTINUE button after rewinding or fast forwarding the tape to the position between the previous recording's start point and stop points, the recording stop point can more efficiently be found via an automatic search function.
If the recording stop point cannot be found, the **CONT** indication flashes in the display window.

5 Press the VTR button on the camcorder or the lens.

This starts the recording function.

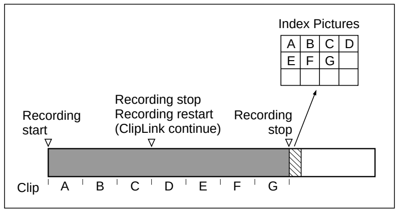
6 When the recording is finished, set recording pause mode (or specify a Mark OUT point).

The time code (HH:MM:SS), scene number (serial number of scene during which recording was stopped) and other data for the current clip (contents between the Rec IN and Rec OUT points or between Mark IN and Mark OUT points) are recorded into cassette memory. The Index Pictures for the recorded scene are recorded after the recorded scene when the DSBK-301 is fitted.

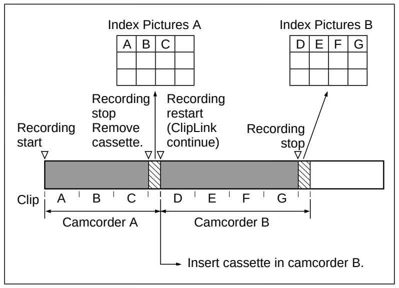
Repeat steps **5** and **6** to start recording the next scene.

The Index Pictures are recorded onto the tape as described below when the DSBK-301 is fitted.

When all Index Pictures are recorded at the end of the recordings


Index Pictures
A B C D
E F G
Recording start
Recording stop
Recording restart
(ClipLink continue)
Recording stop
Clip
A B C D E F G

When two or more series of Index Pictures are separately recorded
Two or more series of Index Pictures may be recorded if ClipLink shooting is once interrupted due to ejecting the cassette and resumed (in case of changing the camcorder on resuming, for example).

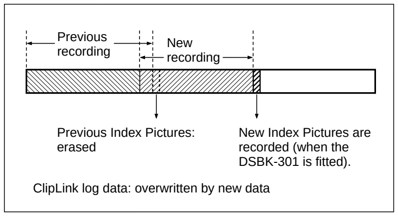

Index Pictures A
A B C
Index Pictures B
D E F G
Recording start
Recording stop
Remove cassette.
Recording restart
(ClipLink continue)
Recording stop
Clip
A B C D E F G
Camcorder A
Camcorder B
Insert cassette in camcorder B.

If there is no need for ClipLink continue

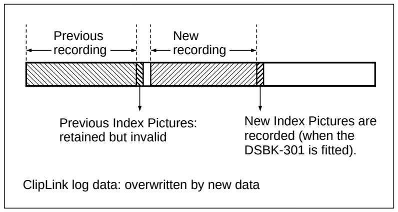
It is not necessary to press the ClipLink CONTINUE button when restarting recording.
See step **4** in the previous section "Resuming Recording in ClipLink Mode".

The contents recorded on the cassette may differ in this case depending on the settings when the recording is restarted.

When recording in ClipLink mode is started and previous recording is overwritten


Previous recording
New recording
Previous Index Pictures: erased
New Index Pictures are recorded (when the DSBK-301 is fitted).
ClipLink log data: overwritten by new data

When recording in ClipLink mode is started after a previous recording


Previous recording
New recording
Previous Index Pictures: retained but invalid
New Index Pictures are recorded (when the DSBK-301 is fitted).
ClipLink log data: overwritten by new data

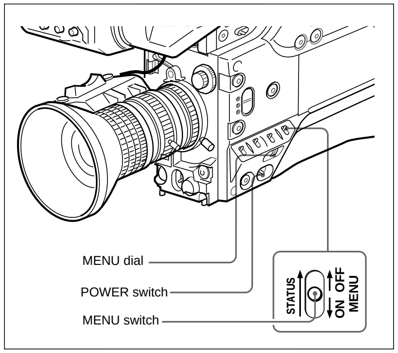
Viewfinder Screen Indications

There are four types of indication screen which appear in the viewfinder, as follows.

- **Normal indications**
  These show the operating state of the camcorder. *(See page 74.)*
- **Status indications**
  Pressing the MENU switch up while the normal indications are present calls a display of current settings. *(See page 77.)*
- **Basic menu**
  This provides settings for the lens iris, shutter speed and so forth, and also a titling screen. *(See the section "Viewfinder Basic Menu" on page 78.)*
- **Advanced menu**
  This provides settings for the center marker, zebra pattern, viewfinder screen indications, and so forth. *(See the section "Viewfinder Advanced Menu" on page 83.)*

Changing the Viewfinder Display

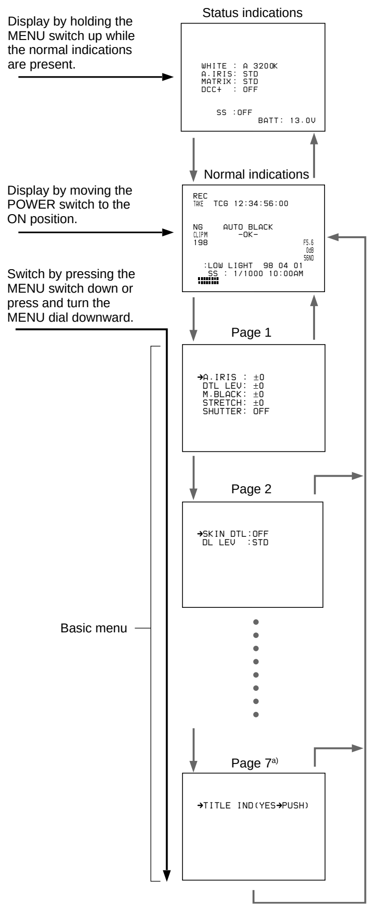
Use the buttons and switches shown in the following figure to switch the viewfinder display among the normal indications, basic menu pages and advanced menu pages.


MENU dial
POWER switch
MENU switch
STATUS
ON
OFF
MENU

Displaying the normal indications and switching to the basic menu

To display the normal indications, move the POWER switch to the ON position.
To switch to and from the basic menu, use the MENU switch or MENU dial.

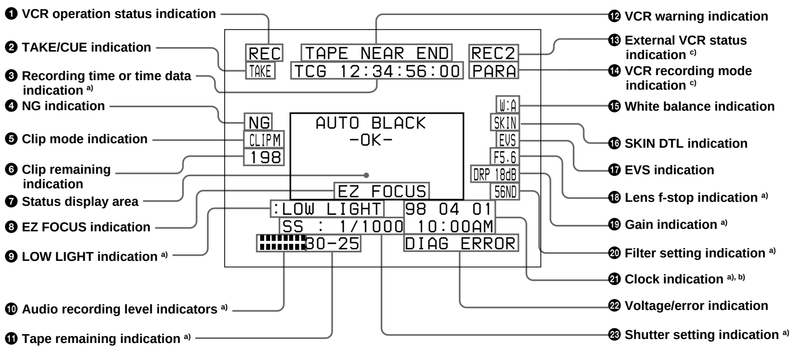
"CHECK DIAG" appears before basic menu page 1 when the self diagnostic function has detected an abnormality *(see page 82).*


Display by holding the MENU switch up while the normal indications are present.
Status indications
WHITE : A 3200K
A.IRIS: STD
MATRIX: STD
DCC+ : OFF
SS :OFF
BATT: 13.0V
Display by moving the POWER switch to the ON position.
Normal indications
REC
TAKE TCG 12:34:56:00
NG AUTO BLACK
CLIPM -OK-
198
F5.6
0dB
5ND
:LOW LIGHT 98 04 01
SS : 1/1000 10:00AM
Switch by pressing the MENU switch down or press and turn the MENU dial downward.
Page 1
→A.IRIS : ±0
DTL LEV: ±0
M.BLACK: ±0
STRETCH: ±0
SHUTTER: OFF
Page 2
→SKIN DTL:OFF
DL LEV :STD
Basic menu
Page 7a)
→TITLE IND(YES→PUSH)

a) The menu configuration differs according to the camcorder's switch settings, the connected VCR, and the type of input signal. A seven-page configuration results when all of the basic menu pages are displayed.

Viewfinder Normal Indications

During normal operation, the following items can be indicated in the viewfinder.


❶ VCR operation status indication
❷ TAKE/CUE indication
❸ Recording time or time data indication a)
❹ NG indication
❺ Clip mode indication
❻ Clip remaining indication
❼ Status display area
❽ EZ FOCUS indication
❾ LOW LIGHT indication a)
❿ Audio recording level indicators a)
⓫ Tape remaining indication a)
⓬ VCR warning indication
⓭ External VCR status indication c)
⓮ VCR recording mode indication c)
⓯ White balance indication
⓰ SKIN DTL indication
⓱ EVS indication
⓲ Lens f-stop indication a)
⓳ Gain indication a)
⓴ Filter setting indication a)
㉑ Clock indication a), b)
㉒ Voltage/error indication
㉓ Shutter setting indication a)
REC
TAKE
TAPE NEAR END
TCG 12:34:56:00
REC2
PARA
W:A
NG
AUTO BLACK
-OK-
CLIPM
SKIN
EVS
198
F5.6
DRP 18dB
EZ FOCUS
56ND
:LOW LIGHT
98 04 01
SS : 1/1000
10:00AM
30-25
DIAG ERROR

a) Whether or not to display can be selected by menu setting.
b) This is recorded over the picture being shot.
c) Displayed only when an external VCR is connected

The significance of each of the indications shown in the figure is as follows.

❶ VCR operation status indication

This indicates the VCR's current operation status (REC, PLAY, etc.).

❷ TAKE/CUE indication

This displays a TAKE or CUE indication when using the ClipLink function for recording.

TAKE: When recording in Mark mode, this indication appears when a Mark IN point is set and disappears when the next Mark OUT point is set.

CUE: When recording in Cue mode, this indication appears for about 1 second when a Cue point is set.

❸ Recording time or time data indication

This shows the following values.

- When the REC TIME switch is in the TTL position: The total recording time (When an external VCR is connected, you can select whether to show the recording time of the internal VCR or of the external VCR using advanced menu page 4. See page 86 for more information.)
- When the REC TIME switch is in the DUR position: The duration of the current recording cut
- When the REC TIME switch is in the OFF position and the item TC IND in advanced menu page 6 is set to "ON": A time data value depending on the DISPLAY switch settings as shown in the following table

DISPLAY switch setting	Time data displayed
COUNTER	CNT: Tape transport time
TC	TCG: a time code from the time code generator TCR: a time code from the time code reader
U-BIT	UBG: a user bit value from the time code generator UBR: a user bit value from the time code reader

Time data values appear during playback, fast forward, rewind, or recording review.

❹ NG indication

An "NG" (No Good) indication appears if you designate a recorded scene as "NG" when using the ClipLink function for recording.

❺ Clip mode indication

A "CLIP M" or "CLIP C" indication appears when you use the ClipLink function for recording.

CLIP M: Indicates shooting in Mark mode
CLIP C: Indicates shooting in Cue mode

❻ Clip remaining indication

The number of available clips is displayed when you use the ClipLink function for recording.

❼ Status display area

One of the following values or messages is displayed to indicate the camcorder's current status or its operation status.

- New values when changing camcorder's settings
- Messages indicating progress or results of adjustments
- The camcorder's current settings
- SetupLog data recorded to tape during shooting *(see page 90)*

❽ EZ FOCUS indication

This appears when the EZ FOCUS button is pressed, enabling the "easy focus" function.

Note

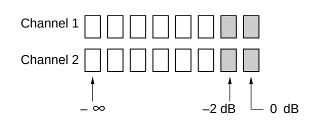
The status indication is not shown while this indication appears.

❾ LOW LIGHT indication

This warning appears if the lighting level is inadequate.

❿ Audio recording level indicators

These show the recording levels of audio channels 1 and 2.


Channel 1
Channel 2
– ∞
–2 dB
0 dB

⓫ Tape remaining indication

This shows the tape remaining as follows.

Indication	Tape remaining
F-30	At least 30 minutes
30-25	25 - 30 minutes
25-20	20 - 25 minutes
20-15	15 - 20 minutes
15-10	10 - 15 minutes
10-5	5 - 10 minutes
5-0	2 - 5 minutes
5-0 (flashing)	0 - 2 minutes

⓬ VCR warning indication

This shows warning indications about operation or status of the VCR.

Indication	Meaning
NO TAPE	There is no tape loaded.
REC INHIBIT	The tape is in the recording inhibited state.
LOW BATT	The battery is almost exhausted.
BATT END	The battery is exhausted.
TAPE NEAR END	The tape is near the end.
TAPE END	The tape is at the end.
SERVO	The servo lock has been lost.
HUMID	There is condensation.
RF	The video heads are clogged, or there is some other fault in the recording system.
SLACK	The tape is not wound properly.
MP TAPE	An incorrect type of cassette has been loaded. (The cassette is automatically ejected and the indication disappears in about two seconds.)
CLIP DATA ERR	Abnormality of the cassette memory data.
AUDIO 48kHz (4 flashes/s)	At back space editing, you are switching from 32 kHz audio recording mode (4-channel mode) to 48 kHz audio recording mode (2-channel mode).
AUDIO 32kHz (4 flashes/s)	At back space editing, you are switching from 48 kHz audio recording mode (2-channel mode) to 32 kHz audio recording mode (4-channel mode).
ERROR:91-13F	Failure in loading or saving the cassette memory data.

(Continued)

Indication	Meaning
CLIP CONT?	Asking whether you will continue shooting in ClipLink mode or not when the cassette contains ClipLink data. (The indication disappears when you press the ClipLink CONTINUE button or start the next shooting without pressing it.)
CLIP NEAR END	At ClipLink shooting, capacity for only 1 to 3 clips remains.
CLIP END	Impossible to record any more clip shots.

⑬ External VCR status indication (when an external VCR is connected)

Shows the external VCR operation status.

⑭ VCR recording mode indication (when an external VCR is connected)

Shows recording mode of the internal and external VCRs set by the VTR TRIGGER switch.

Indication	Meaning
PARA	Simultaneous recording of the internal and external VCRs
INT	Recording on the internal VCR
EXT	Recording on the external VCR

⑮ White balance indication

The following indications appear.

Indication	Meaning
EZ	Operating in EZ mode (The ATW function is selected.)
ATW	The ATW function is selected (The ATW button was pressed and the indicator is lit.)
W:A	White balance memory A is selected.
W:B	White balance memory B is selected.
W:P	Preset white balance is selected.
W:M	Manual adjustment is performed remotely.

⑯ SKIN DTL indication

This appears when the skin detail function is activated (The SKIN DTL switch is set ON.)

⑰ EVS indication

This appears when the EVS (Enhanced Vertical definition System) function is enabled. *(See page 104.)*

⑱ Lens f-stop indication

This shows the f-stop of the lens.

Notes

- Depending on the lens being used, this indication may differ slightly from the actual f-stop on the lens.
- No indications appear when you use a lens with the 7-pin lens connector.

⑲ Gain indication

This shows the gain value, and the settings of the HYPER GAIN switch and the DPR (Dual Pixel Readout) function *(see page 85)* as shown in the following table.

Example indication	Meaning
18dB	Gain setting is 18 dB.
DPR 18dB	The DPR function is enabled. In this case the DPR function approximately doubles the gain (an increase of 6 dB) over the current gain setting (in this case 18 dB).
HYPER	The HYPER GAIN switch is in the ON position. In this case the hyper gain function increases the gain by a factor of about 60 with respect to 0 dB regardless of the current gain setting (that is, increased to 36 dB).

⑳ Filter setting indication

This shows the setting of the FILTER control.

Indication	Filter setting
3200[a]	1 (3200K)
56ND	2 (5600K + $^1/_8$ND)
5600	3 (5600K)
56ND	4 (5600K + $^1/_{64}$ND)

a) When “3000” is selected in advanced menu page 3 (page 84), “3000” is displayed.

㉑ Clock indication

The clock indication is shown in one of the following ways (according to the CLOCK IND setting of CAM, BARS, or OFF in advanced menu page 8).

CAM: Always displayed.
BARS: Displayed whenever color bars are displayed.
OFF: Not displayed.

If the clock indication is displayed during recording, it is recorded onto the image.

㉒ Voltage/error indication

The current voltage is displayed whenever the power supply voltage dips below 11.3 V DC. However, you can also display the current voltage at any time by pressing and holding the MENU switch in the upward position (the display is shown for as long as you hold the switch upward).
An error message is displayed when an abnormality has been detected by the auto diagnostic function *(page 82)*. If there is a voltage drop below 11.3 V DC and an error has been detected, the low voltage indication alternates at one-second intervals with the error indication.

If an error message appears, contact your Sony dealer.

If using an Anton Bauer Intelligent Battery System

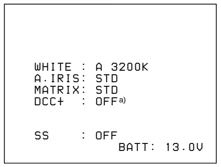
The remaining battery capacity is shown as a percentage.

㉓ Shutter setting indication

When the SHUTTER switch has been set to ON, the shutter speed or CLS frequency set in basic menu page 1 is displayed here.

Status Indications

If you set the MENU switch to STATUS while a menu is being displayed, the camcorder’s current setting status will be shown in this display area.



```
WHITE : A 3200K
A.IRIS: STD
MATRIX: STD
DCC+  : OFFa)


SS    : OFF
           BATT: 13.0V
```

a) When both the DCC+ and DynaLatitude functions are set to OFF

Display	Description
WHITE	White balance adjustment method selection (PRE/A/B) and color temperature during auto white balance adjustment
A.IRIS	Iris adjustment method selection (STD/SPOT L/BACK L)
MATRIX	Setting of the MATRIX switch (page 21)
DCC+ or DL	**For DCC+ indication:** ON with the OUTPUT/DL/DCC+ switch set to CAM/DCC+ (DCC+ ON), and OFF with the switch set to CAM/DL and DL in advanced menu page 2 (page 85) set to OFF (both DCC+ and DynaLatitude OFF). **For DL indication:** When setting the OUTPUT/DL/DCC+ switch to DL and DL in advanced menu page 2 to OFF (DynaLatitude OFF), LOW, STD or HIGH is displayed according to DL LEV setting in basic menu page 2 (page 79).

Viewfinder Basic Menu

To display the basic menu pages, press the MENU switch downward (to ON position) or press the MENU dial while the normal indications are being shown in the viewfinder. The basic menu configuration can include up to 7 pages. (The configuration depends on the switch settings.)

Basic Menu Operations

The common operations on all basic menu pages are described below.

To change the page or item

The cursor is moved downward each time you press the MENU switch down. Once the cursor has reached the last item on a page, press down the MENU switch to go to the next page. When the last page is being displayed, pressing down the MENU switch returns the display to the normal indications.
The cursor is moved upward each time you press up the MENU switch. Once the cursor has reached the first item on a page, pressing up the MENU switch returns the display to the normal indications.
The cursor starts blinking when you press the MENU dial. In this state, you can change the page or item by turning the MENU dial.

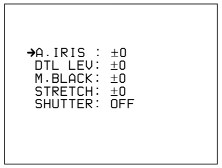
To change settings

Align the cursor to the desired item using the MENU switch and turn the MENU dial.
You can change settings only with the MENU dial.
Press and turn the MENU dial to align the cursor to the desired item and press the MENU dial.
To reset any item to its shipped settings, press the MENU dial for 2 seconds.

Contents and Settings of Each Page

Each page’s contents and settings are described below.

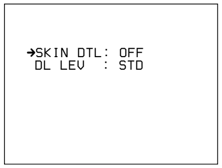
Basic menu page 1



```
➔A.IRIS : ±0
 DTL LEV: ±0
 M.BLACK: ±0
 STRETCH: ±0
 SHUTTER: OFF
```

Item	Settings
A. IRIS Sets a base value for auto adjustment of lens iris.	**–1.0, –0.5, ±0 (normal value), +0.5, +1.0** Negative adjustment values set a narrower lens iris and positive values set a wider lens iris.
DTL LEV Sets the detail (edge) emphasis.	**–99 to ±0 (normal value) to +99** Negative adjustment values soften the image’s edges and positive values sharpen them.
M. BLACK Sets the master pedestal level.	**–99 to ±0 (normal value) to +99** Negative adjustment values make dark areas of the picture darker and increase the contrast. Positive adjustment values dark areas of the picture lighter and reduce the contrast.
STRETCH Sets black stretch/compress value.	**–16 to ±0 (normal value) to +15** This function adjusts the intensity of dark areas of the screen. Negative values make these areas darker (black compress) and positive values make these areas brighter (black stretch).
SHUTTER Sets shutter speed or CLS/EVS setting *(see page 104)*.	**DSR-300:** 1/100 (normal value), 1/250, 1/500, 1/1000, 1/2000, EVS, CLS (60.4 Hz to 200.3 Hz) **DSR-300P:** 1/60 (normal value), 1/250, 1/500, 1/1000, 1/2000, EVS, CLS (50.3 Hz to 201.4 Hz) This selects either the shutter speed or the scan frequency or EVS for the clear scan function.

Basic menu page 2

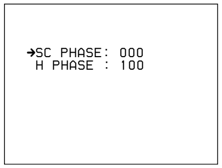


```
➔SKIN DTL: OFF
 DL LEV  : STD
```

Item	Settings
SKIN DTL Sets the amount of skin detail correction.	**0.0 to 0.5 (normal value) to 1.0** Smaller values set a softer skin detail.
DL LEV Sets the DynaLatitude level.	**LOW, STD (normal value), HIGH** Set the amount of DynaLatitude effects as high level, standard level (STD), or low level.

Basic menu page 3

This menu is displayed only when an external sync signal is input to the VCR connected to the camera head.

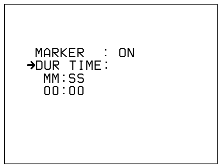


```
➔SC PHASE: 000
 H PHASE : 100
```

Item	Settings
SC PHASE Sub carrier phase adjustment for when the camcorder is genlocked.[a]	**000 (normal value) to 999**
H. PHASE Horizontal phase adjustment for when the camcorder is genlocked.[a]	**000 to 100 (normal value) to 199**

a) This applies when using an external sync signal to synchronize operation of several camcorders (see page 63).

Basic menu page 4



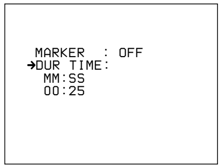
```
 MARKER   : ON
➔DUR TIME:
  MM:SS
  00:00
```

Item	Settings
MARKER Sets marker display ON/OFF.	**ON (normal value), OFF** Markers are displayed when this setting is ON and is not displayed when it is OFF. When the setting is ON, go to advanced menu page 4 to select the type of marker *(see page 86)*.
DUR TIME Sets the recording time Setting the recoriding time before shooting helps you with making scenes of equal duration. When shooting with displaying the recording time of the current cut in the viewfinder (with the REC TIME switch set to DUR), the recording time indication flashes to remind you that the recording time has passed.	**00:00 to 59:59 (minute to second)** See “Setting the recording time in seconds”.

Setting the recording time in seconds

Move the cursor to DUR TIME, then press the MENU dial.

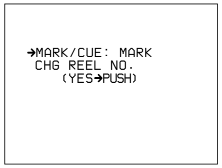
A value of seconds appears.



```
 MARKER   : OFF
➔DUR TIME:
  MM:SS
  00:25
```

If you turn the MENU dial when “59” is displayed, the number under “MM” increased by one.

Basic menu page 5



```
→MARK/CUE: MARK
 CHG REEL NO.
    (YES→PUSH)
```

Item	Settings
MARK/CUE Selects Mark mode or Cue mode	**MARK (normal value), CUE** *See "ClipLink Shooting" (page 65).*
CHG REEL NO Sets the cassette name/number	*See "To set the cassette name/ number" below.*

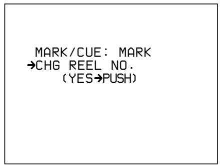
To set the cassette name/number

Note

When using a cassette without cassette memory, you cannot set the cassette name or number.

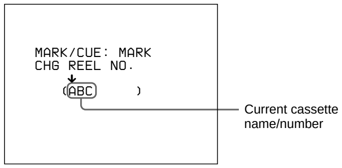
1 Load a cassette.

2 Press the MENU switch to move the cursor to CHG REEL NO, then press the MENU dial.



```
 MARK/CUE: MARK
→CHG REEL NO.
    (YES→PUSH)
```

The cursor (→) changes to the text entry arrow (↓) and the current cassette name/number is displayed. ("NO TAPE" is displayed if you neglected to load a cassette.)



```
MARK/CUE: MARK
CHG REEL NO.
   ↓
  (ABC     )
```

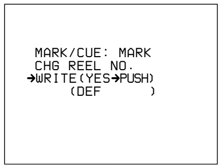
3 Turn the MENU dial until the desired character appears, and press it.

4 Turn the MENU dial to move the text entry arrow.

5 Return to step **3** and repeat the text entry procedure.

6 After completing text entry, move the text entry cursor to the parenthesis position.

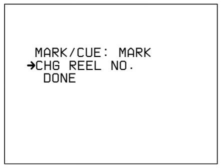
The display changes as follows.



```
 MARK/CUE: MARK
 CHG REEL NO.
→WRITE(YES→PUSH)
     (DEF      )
```

7 Check your cassette name/number setting, and press the MENU dial if no more changes are required. (To make changes or to abort the procedure for this setting, return to step **2**.)

This writes the new cassette name/number to the cassette memory, after which the display changes as follows.



```
 MARK/CUE: MARK
→CHG REEL NO.
  DONE
```

Basic menu pages 6 and 7

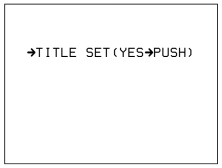
You can create a title of up to four lines, each of twelve alphanumeric or punctuation characters, and then save it. It is then possible to record the title over the picture while shooting.

Note

You cannot set the skin detail correction while a title is displayed.

Entering the title (page 6)

1 Press the MENU switch or turn the MENU dial as necessary to display basic menu page 6 (title setting display) in the viewfinder.

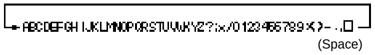


```
→TITLE SET(YES→PUSH)
```

If a title is already present, it appears on this screen.

2 Press and turn the MENU dial until the desired character appears, and press it.

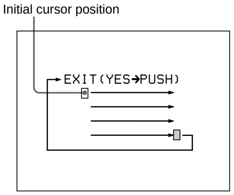
The character cycles through the following sequence.



Press the MENU dial when the desired character appears.

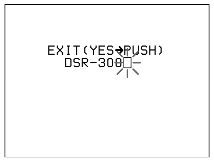
3 Press the MENU dial.

This brings up the cursor on the screen, and switches to cursor transport mode.



4 Turn the MENU dial to move the cursor to the position where you wish to insert a character.
To reverse the cursor, turn the dial in the opposite direction.

5 Repeat steps **2** to **4** until the title is complete.



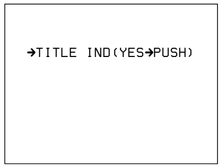
```
EXIT(YES→PUSH)
 DSR-300□
```

6 Align the cursor to EXIT and press the MENU dial.

This displays basic menu page 6 again.
The title created is retained, even when you power the camcorder off.

To record a title (page 7)

1 Access basic menu page 7 (title display).



```
→TITLE IND(YES→PUSH)
```

2 Press the MENU dial once.

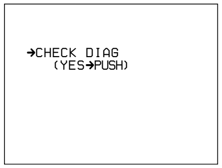
The title is superimposed to the picture displayed on the viewfinder screen.

3 Start shooting.

4 To stop the title recording, press the MENU switch or MENU dial to clear the title display.

When “CHECK DIAG” is displayed

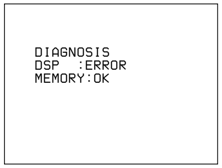
The “CHECK DIAG” indication appears in the status display area whenever the camcorder’s automatic self diagnostic function detects an abnormality. Access this page and perform error checking. (This page is displayed as basic menu page 1.)
“CHECK DIAG” will also be displayed if there is a problem on the sync signal input to the GEN LOCK IN connector. Input a proper sync signal and then perform error checking.



```
➔CHECK DIAG
   (YES➔PUSH)
```

To perform error checking
Press the MENU dial.

The error checking performs on the digital signal processing (DSP) and memory circuits and the results are displayed.
When no error is detected, “OK” appears.
Example: If an abnormality is detected in the DSP circuit.



```
DIAGNOSIS
DSP   :ERROR
MEMORY:OK
```

The error message “DIAG ERROR” appears when the normal indications are displayed. If this message appears, contact your Sony dealer.

Viewfinder Advanced Menu

Advanced Menu Operations

See also the figure on next page.

To display the advanced menu

Move the POWER switch to the ON position while holding down the MENU dial.

To change the page

Align the cursor to the page number and press the MENU dial while the page number is blinking. Turn the dial until the desired page.

To select items in a page

Press the MENU dial to blink the cursor, and press the MENU switch to move the cursor among the menu items. While the cursor is blinking, you can move the cursor by turning the MENU dial.

To change settings

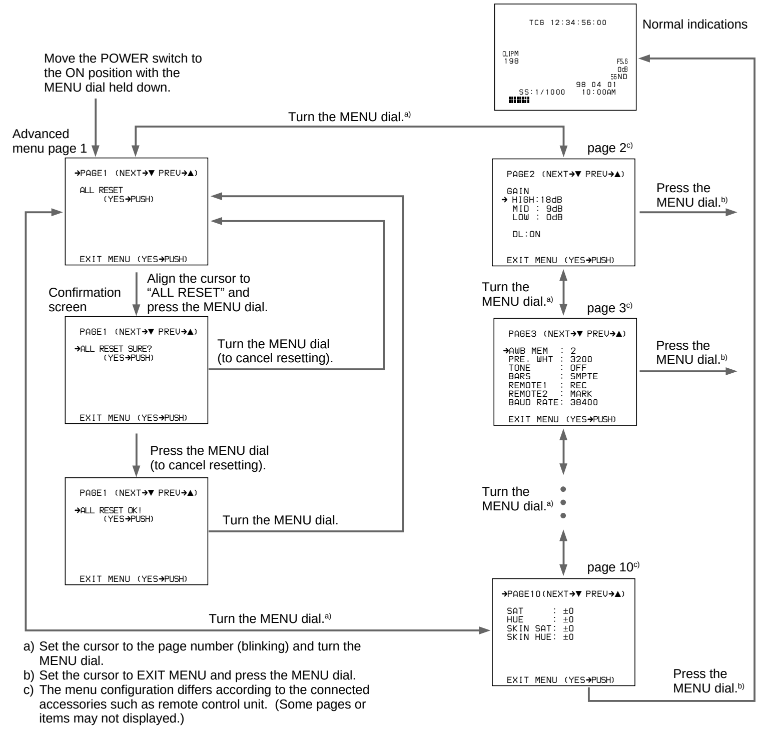
This operation is the same as for the basic menus.

For a description of basic menu operations, see page 78.

To reinitialize all settings in the advanced menu to their factory defaults

1) Align the cursor to ALL RESET and press the MENU dial. (The indication changes to “ALL RESET SURE?”.)
2) Press the MENU dial again. (The indication changes to “ALL RESET OK” and reinitialization completes.) To cancel the reinitialization, turn the MENU dial (without pressing). The indication returns to “ALL RESET”.

Viewfinder Advanced Menu


TCG 12:34:56:00
CLIPM
198
F5.6
0dB
56ND
98 04 01
SS:1/1000
10:00AM
Normal indications
Move the POWER switch to the ON position with the MENU dial held down.
Advanced menu page 1
Turn the MENU dial.a)
page 2c)
→PAGE1 (NEXT→▼ PREV→▲)
ALL RESET
(YES→PUSH)
EXIT MENU (YES→PUSH)
PAGE2 (NEXT→▼ PREV→▲)
GAIN
→ HIGH:18dB
MID : 9dB
LOW : 0dB
DL:ON
EXIT MENU (YES→PUSH)
Press the MENU dial.b)
Confirmation screen
Align the cursor to "ALL RESET" and press the MENU dial.
Turn the MENU dial.a)
page 3c)
PAGE1 (NEXT→▼ PREV→▲)
→ALL RESET SURE?
(YES→PUSH)
EXIT MENU (YES→PUSH)
Turn the MENU dial (to cancel resetting).
PAGE3 (NEXT→▼ PREV→▲)
→AWB MEM : 2
PRE. WHT : 3200
TONE : OFF
BARS : SMPTE
REMOTE1 : REC
REMOTE2 : MARK
BAUD RATE: 38400
EXIT MENU (YES→PUSH)
Press the MENU dial.b)
Press the MENU dial (to cancel resetting).
Turn the MENU dial.a)
PAGE1 (NEXT→▼ PREV→▲)
→ALL RESET OK!
(YES→PUSH)
EXIT MENU (YES→PUSH)
Turn the MENU dial.
page 10c)
Turn the MENU dial.a)
→PAGE10(NEXT→▼ PREV→▲)
SAT : ±0
HUE : ±0
SKIN SAT: ±0
SKIN HUE: ±0
EXIT MENU (YES→PUSH)
Press the MENU dial.b)

a) Set the cursor to the page number (blinking) and turn the MENU dial.
b) Set the cursor to EXIT MENU and press the MENU dial.
c) The menu configuration differs according to the connected accessories such as remote control unit. (Some pages or items may not displayed.)

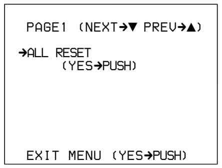
Contents and Settings of Each Page

Each page's contents and settings are described below.

For details of this operation, see "Advanced Menu Operations" (page 83).

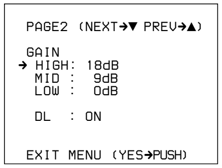
Advanced menu page 1

Use this page to return all menu settings to their factory preset values.



```
PAGE1 (NEXT→▼ PREV→▲)

→ALL RESET
      (YES→PUSH)




EXIT MENU (YES→PUSH)
```

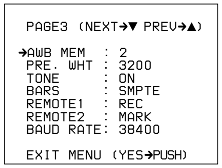
Advanced menu page 2



```
PAGE2 (NEXT→▼ PREV→▲)

GAIN
→ HIGH: 18dB
  MID :  9dB
  LOW :  0dB

  DL  : ON


EXIT MENU (YES→PUSH)
```

Item	Settings
GAIN This sets gain values for the positions of the GAIN switch. The HIGH, MID, and LOW values must be set so that LOW < MID < HIGH.	
HIGH Sets the H position.	**3 dB, 6 dB, 9 dB, 12 dB, 18 dB (normal value), 18 dB + DPR, 24 dB, 24 dB + DPR, HYPER GAIN**
MID Sets the M position.	**0 dB, 3 dB, 6 dB, 9 dB (normal value), 12 dB, 18 dB, 18 dB + DPR, 24 dB, 24 dB + DPR**
LOW Sets the L position.	**–3 dB, 0 dB (normal value), 3 dB, 6 dB, 9 dB, 12 dB, 18 dB, 18 dB + DPR, 24 dB**
DL Sets DynaLatitude function ON/OFF. This setting is valid only when the OUTPUT/DL/DCC+ switch has been set to DL.	**ON (normal value), OFF** When set to ON, the amount of DynaLatitude effects is set in basic menu page 2 *(see page 79).*

Advanced menu page 3

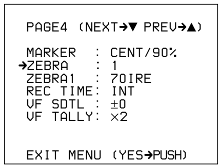


```
PAGE3 (NEXT→▼ PREV→▲)

→AWB MEM   : 2
 PRE. WHT  : 3200
 TONE      : ON
 BARS      : SMPTE
 REMOTE1   : REC
 REMOTE2   : MARK
 BAUD RATE : 38400

 EXIT MENU (YES→PUSH)
```

a) For DSR-300P: EBU75

Item	Settings
AWB MEM Selects whether or not to make the FILTER knob settings (1 to 4) correspond to separate white balance adjustment values stored in memory.	**2 (normal value):** No correspondence with FILTER knob settings. Only two adjustment values (A and B) are stored in memory. **2 × 4FL:** Correspondence with FILTER knob settings. Each of the four knob settings can be used to set A and B adjustment values, for a total of eight settings.
PRE. WHT Selects the color temperature preset for the white balance adjustment.	**3200 (normal value):** 3200 K **3000:** 3000 K
TONE Selects whether or not to output a 1-kHz audio signal with the color bars when the OUTPUT/DL/DCC+ has been set to BARS.	**ON (normal value):** Output audio signal. **OFF:** Do not output audio signal.
BARS Selects normal width or narrower width for color bars.	**SMPTE (normal value for DSR-300):** Normal width **EBU75 (normal value for DSR-300P):** EBU 75% **EBU100 (for DSR-300P):** EBU 100% **SPLIT (for DSR-300P):** Not for normal operation **SNG:** Narrower than normal (used for satellite communications, etc.)
REMOTE1 Sets a function for position 1 of the RM-LG1 connected to the REMOTE connector 1.	**REC (normal value):** Specifies recording start/stop **MARK:** Specifies a Mark IN/OUT point. **CUE:** Specifies a Cue point. **NG:** Specifies NG/OK.
REMOTE2 Sets a function for position 2 of the RM-LG1 connected to the REMOTE connector 1.	**REC:** Specifies recording start/stop. **MARK (normal value):** Specifies a Mark IN/OUT point. **CUE:** Specifies a Cue point **NG:** Specifies NG/OK.
BAUD RATE Sets a baud rate for a computer connected to the REMOTE connector 1 (to be supported in future version).	**9600, 38400 (normal value)**

Advanced menu page 4

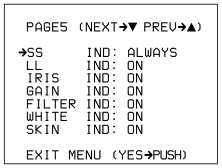


```
PAGE4 (NEXT→▼ PREV→▲)

 MARKER   : CENT/90%
→ZEBRA    : 1
 ZEBRA1   : 70IRE
 REC TIME: INT
 VF SDTL : ±0
 VF TALLY: ×2


 EXIT MENU (YES→PUSH)
```

a) For DSR-300P: 70%

Item	Settings
MARKER Selects ON/OFF setting for center marker, size setting (percentage of viewfinder screen area), and display ON/OFF setting.	**CENT/90% (normal value):** Displays center marker and safety zone marker at 90% size. **CENT/80%:** Displays center marker and safety zone marker at 80% size. **90%:** Displays only safety zone marker at 90% size. **80%:** Displays only safety zone marker at 80% size. **CENT:** Displays only center marker.
ZEBRA Selects type of zebra pattern display.	**1 (normal value):** Displays the zebra pattern over parts having a video level. between 70 and 90 IRE (or 70 and 90%). Use the next item (ZEBRA1) to select the base level. **2:** Displays the zebra pattern over parts having video levels of 100 IRE or above (or 100% or above). **1/2:** Dual display (both 1 and 2)
ZEBRA1 Sets base level for zebra pattern 1.	**70 IRE (normal value) to 90 IRE or 70% (normal value) to 90%** Can be set for each IRE step or 1% step.
REC TIME Selects whether to show the recording time (TTL) of the internal VCR or of the external VCR.	**INT (normal value):** Recording time of the internal VCR **EXT:** Recording time of the external VCR
VF SDTL Sets the detail level of images on the viewfinder screen (displayed when using a viewfinder other than the DXF-701/701CE/701WS/701WSCE).	**–99 to ±0 (normal value) to +99** Negative values set softer edges and positive values set sharper edges.
VF TALLY Selects whether or not to use more than one REC/TALLY indicators in the viewfinder (displayed only when the DXF-701WS/701WSCE viewfinder is attached).	×**1:** Uses only the upper REC/TALLY indicator. ×**2 (normal value):** Uses two REC/TALLY indicators.

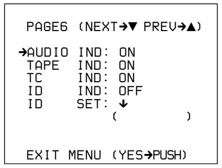
Advanced menu page 5



```
PAGE5 (NEXT→▼ PREV→▲)

→SS     IND: ALWAYS
 LL     IND: ON
 IRIS   IND: ON
 GAIN   IND: ON
 FILTER IND: ON
 WHITE  IND: ON
 SKIN   IND: ON

 EXIT MENU (YES→PUSH)
```

Item	Settings
SS IND Selects the mode for showing the shutter setting when displaying the normal indications.	**3SEC:** Displays shutter setting for three seconds only when the setting has been changed. **ALWAYS (normal value):** Displays the shutter setting at all times.
LL IND Selects whether or not to show the LOW LIGHT indication on the normal indications when inadequate lighting is detected.	**ON (normal value):** Displays. **OFF:** Not display.
IRIS IND Selects whether or not to show the lens's F-stop value (iris indication) on the normal indications. The F-stop value is always displayed when in EZ mode.	**ON (normal value):** Displays. **OFF:** Not display.
GAIN IND Selects whether or not to always show the gain setting indication on the normal indications.	**ON (normal value):** Always displays. **OFF:** displays for two seconds only when the setting has been changed.
FILTER IND Selects whether or not to always show the FILTER knob setting indication on the normal indications. The FILTER knob setting indication is always displayed when in EZ mode.	**ON (normal value):** Always displays. **OFF:** Displays for two seconds only when the setting has been changed.
WHITE IND Selects whether or not to show the setting of the white balance switch.	**ON (normal value):** Displays. **OFF:** Not display.
SKIN IND Selects whether or not to show the setting for skin detail correction.	**ON (normal value):** Displays. **OFF:** Not display.

Advanced menu page 6



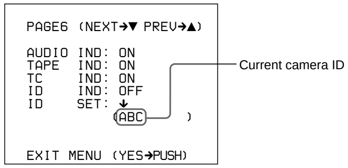
```
PAGE6 (NEXT→▼ PREV→▲)

→AUDIO IND: ON
 TAPE  IND: ON
 TC    IND: ON
 ID    IND: OFF
 ID    SET: ↓
            (        )


 EXIT MENU (YES→PUSH)
```

Item	Settings
AUDIO IND Selects whether or not to show the audio level indication on the normal indications.	**ON (normal value):** Displays. **OFF:** Not display.
TAPE IND Selects whether or not to show the remaining tape indication on the normal indications.	**ON (normal value):** Displays. **OFF:** Not display.
TC IND Selects whether or not to show the time data indication on the normal indications.	**ON (normal value):** Displays. **OFF:** Not display.
ID IND Selects whether or not to display the camera ID when displaying color bars.	**ON (normal value):** Displays. **OFF:** Not display.
ID SET Sets the camera ID (up to eight characters, including alphanumerics, symbols, and spaces).	*See "To set the camera ID" on below.*

To set the camera ID

1 Press the MENU switch or turn the MENU dial to move the cursor to ID SET.

The cursor (→) changes to the text entry arrow (↓).



```
PAGE6 (NEXT→▼ PREV→▲)

AUDIO IND: ON
TAPE  IND: ON
TC    IND: ON
ID    IND: OFF
ID    SET: ↓
          (ABC    )


EXIT MENU (YES→PUSH)
```

2 Press and turn the MENU dial to move the text entry arrow.

Turn the MENU dial upward to move the cursor to the right or downward to move it to the left.

3 Press and turn the MENU dial to enter the desired characters.

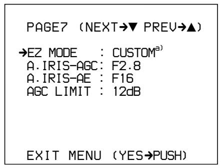
The displayed character changes as you turn the dial.

4 Return to step **2** and repeat the text entry procedure.

5 When you have finished entering the text, press and turn the MENU dial to move the cursor to the parenthesis position.

This clears the displayed menu and returns to the normal indications.

Advanced menu page 7



```
PAGE7 (NEXT→▼ PREV→▲)

→EZ MODE    : CUSTOMa)
 A.IRIS-AGC: F2.8
 A.IRIS-AE  : F16
 AGC LIMIT  : 12dB




 EXIT MENU (YES→PUSH)
```

a) At shipping, the EZ MODE is set to STD.

Item	Settings
EZ MODE When the EZ MODE button has been set to EZ mode ON, this selects whether or not to change the settings of other switches and menus to the standard settings. (The EZ mode function cannot be used during remote operation.)	**STD (normal value):** Changes settings to standard settings. **CUSTOM:** Changes only some settings to standard settings. *For details of the settings when STD or CUSTOM is specified, see "EZ mode settings" on next page.*
A.IRIS-AGC Selects auto iris adjustment which sets an F-stop value that can be switched to AGC (displayed only when the EZ MODE is set to CUSTOM).	**F1.4, F1.8, F2.8 (normal value), F4, F5.6**
A.IRIS-AE Selects auto iris adjustment which sets an F-stop value that can be switched to AE (displayed only when the EZ MODE is set to CUSTOM).	**F5.6 , F8, F11, F16 (normal value)**
AGC LIMIT Sets an upper limit value for AGC adjustment (displayed only when the EZ MODE is set to CUSTOM).	**0 dB, 3 dB, 6 dB, 9 dB, 12 dB (normal value)**

http://getMANUAL.com

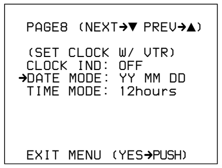
Viewfinder Advanced Menu

EZ mode settings

The following settings are set for the camcorder when EZ mode has been selected.

Item	Settings	
	STD	**CUSTOM**
Matrix	STD	Selectable
Detail level	±0	Selectable
Master black	±0	Selectable
Black stretch	±0	Selectable
Skin detail	OFF	OFF
Shutter	OFF (AE mode)	OFF (AE mode)
Freeze mix	OFF	OFF
Gain	AGC mode	AGC mode
Hyper gain	OFF	OFF
Iris control method	Automatic	Automatic
Auto iris control mode	STD	STD
Iris override	±0	Selectable
Color bar output	Not output	Not output
AGC upper limit	12dB	Selectable
AGC's F stop value	F2.8	Selectable
AE's F stop value	F16	Selectable
ATW	ON	ON
DynaLatitude	OFF	OFF
DCC+	ON	ON
F-stop value indication	ON	ON
Filter indication	ON	ON
Clock indication	OFF	OFF

Advanced menu page 8



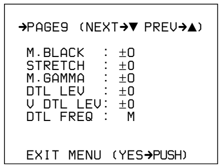
```
 PAGE8 (NEXT→▼ PREV→▲)

 (SET CLOCK W/ VTR)
 CLOCK IND: OFF
→DATE MODE: YY MM DD
 TIME MODE: 12hours




 EXIT MENU (YES→PUSH)
```

Item	Settings
CLOCK IND Selects whether or not to display the date/time on the normal indications.	**OFF (normal value):** Not display. **CAM:** Displays. **BARS:** Displays only when color bars are displayed.
DATE MODE Selects the date display format.	**YY. MM. DD. (normal value):** Year/month/day **MM. DD. YY.:** Month/day/year **DD. MM. YY.:** Day/month/year
TIME MODE Selects whether to display a 12-hour clock (showing A.M. and P.M. hours) or a 24-hour clock.	**12hours:** 12-hour clock **24hours (normal value):** 24-hour clock

Note

Use the VCR menu to set the date and time *(see page 93).*

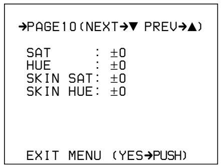
Advanced menu page 9



```
→PAGE9 (NEXT→▼ PREV→▲)

 M.BLACK   : ±0
 STRETCH   : ±0
 M.GAMMA   : ±0
 DTL LEV   : ±0
 V DTL LEV: ±0
 DTL FREQ  :  M


 EXIT MENU (YES→PUSH)
```

Item	Settings
M.BLACK and STRETCH	*See "Basic menu page 1" (page 78).*
M.GAMMA Adjusts the gamma curve.	**–99 to ±0 (normal value) to +99**
DTL LEV Adjusts the detail.	**–99 to ±0(normal value) to +99**
V DTL LEV Adjusts the vertical detail.	**–99 to ±0 (normal value) to +99**
DTL FREQ Adjusts the central frequency of the detail.	**LL, L, M (normal value), H, HH**

Advanced menu page 10



```
→PAGE10(NEXT→▼ PREV→▲)

 SAT      : ±0
 HUE      : ±0
 SKIN SAT: ±0
 SKIN HUE: ±0




 EXIT MENU (YES→PUSH)
```

Item	Settings
SAT Adjusts the saturation of the image.	**–99 to ±0 (normal value) to +99** Negative adjustment values decrease the saturation and positive adjustment values increase the saturation.
HUE Adjusts the hue of the image.	**–99 to ±0 (normal value) to +99**
SKIN SAT Adjusts the saturation in the specified area of the image.	**–99 to ±0 (normal value) to +99** Negative adjustment values decrease the saturation and positive adjustment values increase the saturation.
SKIN HUE Adjusts the hue in the specified area of the image.	**–99 to ±0 (normal value) to +99**

Using SetupLog

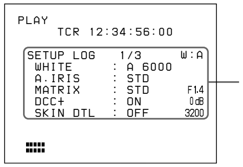
The SetupLog function records camcorder settings every few seconds at shooting and displays the recorded data in the viewfinder during playback.

To view the SetupLog Data, perform the following procedure.

1. Turn the power on and load the tape that contains the recording to be viewed.
2. Play back the tape.

   For details of playback operation, see page 58.
3. Press the MENU switch upward (to STATUS position).

   The display changes to page 1 of the status display.

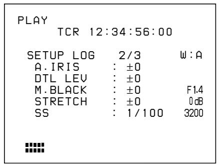


```
PLAY
     TCR 12:34:56:00

SETUP LOG   1/3      W:A
 WHITE      : A 6000
 A.IRIS     : STD
 MATRIX     : STD      F1.4
 DCC+       : ON        0dB
 SKIN DTL   : OFF      3200
```

Settings during recording

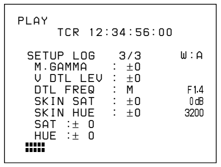
Each time you press upward the MENU switch, the status display cycles through the status pages and playback display in the order: page 2, page 3, the playback display (containing the current settings), and page 1.

Status display (page 2)



```
PLAY
     TCR 12:34:56:00

 SETUP LOG   2/3      W:A
  A.IRIS     : ±0
  DTL LEV    : ±0
  M.BLACK    : ±0      F1.4
  STRETCH    : ±0       0dB
  SS         : 1/100   3200
```

Status display (page 3)



```
PLAY
     TCR 12:34:56:00

 SETUP LOG   3/3      W:A
  M.GAMMA    : ±0
  V DTL LEV  : ±0
  DTL FREQ   : M       F1.4
  SKIN SAT   : ±0       0dB
  SKIN HUE   : ±0      3200
  SAT :± 0
  HUE :± 0
```

Note

In the following cases, changed settings that were not recorded may appear as blank settings.

- SetupLog data is overwritten at intervals of a few seconds during recording. If the settings are changed frequently for certain items, it may not always be recorded in time.
- If the recording time is very short, recording may be ended before all of the data has been overwritten.

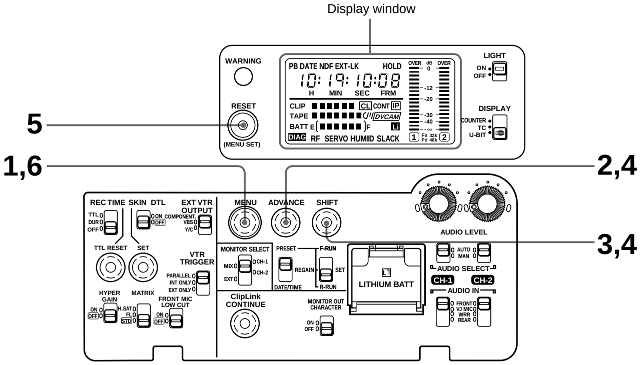
Setting on the VCR Section — VCR Menu

You can use the VCR menu for settings on the VCR section.

Operation	Menu No.	Reference
Real time clock and calendar settings	101	Page 93
Cumulative hour counts: • Head drum operating hours • Tape transport hours • Operating (power-on) hours	201	Page 93
Frame mode selection for time code (DSR-300 only)	204	Page 93
Battery capacity indication selection	206	Page 94
Standby-on period setting	207	Page 94
Use auto-check function	210	Page 95
Selection of ClipLink function	211	Page 97
Audio recording mode selection	212	Page 97
Audio reference level selection	213	Page 98
Fade-in/fade-out setting for the audio recording start and stop points	214	Page 98
Use setup add (DSR-300 only)	220	Page 99

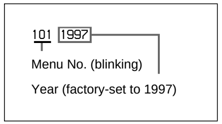
VCR Menu Operation

Basic Operation


Display window
5
1,6
2,4
3,4
WARNING
RESET
(MENU SET)
PB DATE NDF EXT-LK HOLD
10:19:10:08
H MIN SEC FRM
CLIP
TAPE
BATT
DIAG RF SERVO HUMID SLACK
LIGHT
ON
OFF
DISPLAY
COUNTER
TC
U-BIT
REC TIME
SKIN
DTL
EXT VTR OUTPUT
MENU
ADVANCE
SHIFT
AUDIO LEVEL
TTL RESET
SET
VTR TRIGGER
HYPER GAIN
MATRIX
FRONT MIC LOW CUT
MONITOR SELECT
PRESET
F-RUN
REGAIN
R-RUN
DATE/TIME
ClipLink CONTINUE
MONITOR OUT CHARACTER
LITHIUM BATT
AUDIO SELECT
CH-1
CH-2
AUDIO IN

1 Press the MENU button.

"DIAG" appears in the display window and the time data display in the display window switches to the menu display.


101 1997
Menu No. (blinking)
Year (factory-set to 1997)

2 Press the ADVANCE button repeatedly until the desired menu appears.

3 Press the SHIFT button.

This shows the current settings for the menu selected by step **2**.
The setting can be changed for the digit that is blinking.

To exit from changing settings
Press the MENU button to close the menu.

4 Change the settings.

Operation	Step
Select digit to be changed	Press the SHIFT button.
Change the value	Press the ADVANCE button.

5 Press the RESET/(MENU SET) button.

This records the new setting and returns to a blinking display of the menu number.

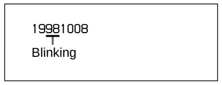
6 Press the MENU button.

This returns the display window to the display shown before the VCR menu.

Menu 101 Setting the Real Time Clock and Calendar

1 Display menu 101 and press the SHIFT button.

The current calendar setting appears in the setting mode format (yyyymmdd).
Example: October 8, 1998


19981008
Blinking

Note

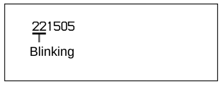
The first two digits of the year setting cannot be changed.

2 Use the SHIFT and ADVANCE buttons to set the desired date.

If there are no more new settings to be made, go directly to step **5**.

3 Press the SHIFT button while the date display is blinking (Example: 19981008).

The current time (real time clock) setting is displayed.
Example: 10:15:05 PM


221505
Blinking

4 Use the SHIFT and ADVANCE buttons to set the current time.

5 Press the RESET/(MENU SET) button.

This starts the clock advance operation.

6 Press the MENU button.

This returns the display window to the display shown before the VCR menu.

The date set can be displayed in the time value indication *(see page 59)* in the following way.

On the DSR-300: Displayed in mmddyyyy format (Example: 10081998)
On the DSR-300P: Displayed in ddmmyyyy format (Example: 08101998)

Menu 201 Checking the Total Operating (Power-On) Hours

1 Display menu 201 and press the SHIFT button.

Pressing the SHIFT button cycles through the following display items.

Indication	Example
Head drum operating hours	A 0492Hr
Tape transport hours	b 0480Hr
Total operating hours	C 0853Hr
Menu number	201 0492

2 Check the indication, then press the RESET/(MENU SET) button, followed by the MENU button.

This returns the display window to the display shown before the VCR menu.

Menu 204 Selecting Frame Mode (DF/NDF) for Time Code (for DSR-300 Only)

Select frame modes when setting the time code.

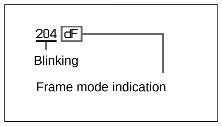
Drop-frame mode (factory setting): When adjusting the discrepancy between time code value and real time
Non-drop-frame mode: When you need not adjust the discrepancy between time code value and real time

For details of time code settings, see page 62.

1 Display menu 204.

The menu number and the current frame mode setting are shown.

Example: dF (drop-frame mode)

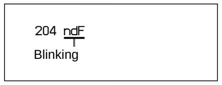


If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the frame mode start blinking, then press the ADVANCE button.

This switches the frame mode display as shown below.

Example: ndF (non-drop-frame mode)



Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and the display window returns to the display shown before the VCR menu.

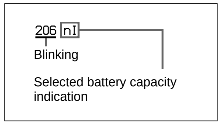
Menu 206 Selecting Battery Capacity Indication

This selects the indication type of battery capacity.

1 Display menu 206.

The selected menu number is displayed, along with the name of the currently selected battery.

Example: nI (Indication for the NP-1B/BP-90A)



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button until the desired battery name is displayed, then press the ADVANCE button.

Pressing the ADVANCE button cycles through the following indications.

nI → LI → Antn → Auto

Indication	Meaning
Auto (factory setting)	Automatic detection of battery type.
nI	Indication for NP-1B/BP-90A battery is selected.
LI	Indication for BP-L40/L60/L60A/L90/L90A battery is selected.
Antn	Indication for Anton Bauer Magnum battery is selected [a].

a) To use the Anton Bauer Magnum Battery System, a special battery mount developed by Anton Bauer Corporation is required.
For details, contact an Anton Bauer dealer or your Sony dealer.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and the display window returns to the display shown before the VCR menu.

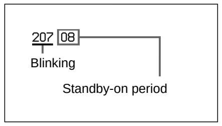
Menu 207 Setting Standby-On Period

At recording pause state, the camcorder waits for a certain standby-on period and then automatically switches to standby-off mode. This standby-on period can be set in advance.

1 Display menu 207.

The selected menu number is displayed, along with the current standby-on period setting (in minutes).

Example: 8 minutes



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button until the standby-on period starts blinking, then press the ADVANCE button.

Each press of the ADVANCE button changes the setting as follows.

08 (factory setting) → 01 → 03 → 05

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and the display window returns to the display shown before the VCR menu.

Menu 210 Using Auto-Check Function

On the DSR-300/300P, the internal check can be automatically performed using the auto-check function. Meanwhile, a test recording and playback are also performed for about 1 minute.
Before shooting, it is desirable to perform auto-check and make sure for problems in VCR's internal operations through the result of the internal check displayed in the display window and the video and audio recording qualities.

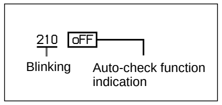
Preparations for testing

Make preparations as shown in the table below.

Preparation	Refer to
Connect a monitor to the MONITOR OUT or S VIDEO OUT connector	Page 23
Connect an earphone or headphones to the EARPHONE connector	Page 14
Prepare a cassette for test recording/playback	Page 49

To perform the auto-check

1 Display menu 210.

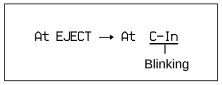


2 Press the SHIFT button to make the auto-check function indication (oFF) start blinking, then press the ADVANCE button to change the indication to "on".

To cancel the auto-check function, press the MENU button to close the menu.

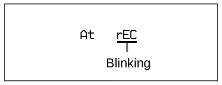
3 Press the RESET/(MENU SET) button.

This changes the display and opens the cassette holder. If there is a cassette in the holder, it is ejected (except during recording).



4 Insert the cassette and close the cassette holder.

The display changes to the following, and the tape is loaded.

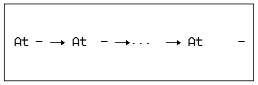


5 Use the tape transport buttons to change the tape position for test recording if necessary, or advance to step **6**.

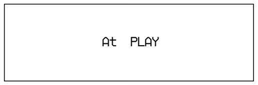
(Continued)

6 Press the VTR button on the camcorder or lens.

Test recording starts.
The display changes as shown below during recording. (The hyphen following “At” moves to right.)



After about 1 minute, the tape is rewound to the recording start position and playback starts. The following is displayed during playback.



7 Check the recording quality of the playback video on the viewfinder or monitor screen. Check the recording quality of the playback audio from the earphone or headphones.

If the recording quality is poor
There may be some kind of problem whether or not it is detected by the internal check. Refer to the section “Troubleshooting”*(page 117)* and repeat the test. If the recording quality remains poor, contact your Sony dealer.

When playback ends, the internal check result is displayed and the camcorder enters recording pause mode.

8 After confirming the result *(see the next section “Confirming the result”)*, press the MENU button.

The display window returns to the display shown before the VCR menu.

Confirming the result

The result of the internal check is displayed in code as shown in the table below. When a problem is indicated, follow the instructions to check the camcorder and cassette. If no errors can be found, contact your Sony dealer. Also, be sure to check the quality of the playback video and audio *(see step **7**)*.

Display	Diagnostic result
At good	VCR's internal operations are normal. If the video and audio recording qualities are normal, the unit is ready for use.
At ng-01	There may be a problem in the VCR or the cassette. Contact your Sony dealer.
At ng-02	There may be a problem in VCR's internal operations or data loading from the tape. Clean the video heads using the DVM-12CL Cleaning Cassette (see page 114) and repeat the auto-check. If the result is the same, contact your Sony dealer.
At ng-03	There may be a problem in the link between the camera and VCR sections. If not, correct the error and repeat the auto-check. If the result is the same, contact your Sony dealer.
At ng-04	Check whether the REC/SAVE switch is set to SAVE. If so, repeat the auto-check with setting the switch to REC or using another cassette whose REC/SAVE switch is set to REC. If the result is the same, contact your Sony dealer.
At ng-05	Check whether a cassette is inserted. If not, insert a cassette and repeat the auto-check. If the result is the same, contact your Sony dealer.
o-HAUL	If the video and audio recording qualities are normal, the unit is ready for use. However, the unit requires service. It is desirable to consult your Sony dealer.
At Abort	The test recording or playback and internal check have aborted (when a tape transport button was pressed during recording or playback or when the tape ended). To resume the auto-check, press the MENU button to close the menu and perform the procedure described in the previous section “To perform the auto-check”.

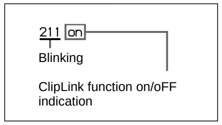
Menu 211 Selecting ClipLink Function

This setting must be made when not using the ClipLink function.

For details of the ClipLink function, see “ClipLink Shooting” (page 65).

1 Display menu 211.

The ClipLink function is factory-set to on.



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the ClipLink function on/oFF indication start blinking. Press the ADVANCE button to change the indication to oFF.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VCR menu.

Menu 212 Selecting Audio Recording Mode

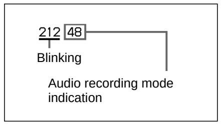
The audio recording mode can be set to either of the following modes.

48-kHz mode (factory setting): Enables two-channel recording mode with 48-kHz sampling frequency.

32-kHz mode: Enables four-channel recording mode with 32-kHz sampling frequency (for CH-1 and CH-2).

1 Display menu 212.

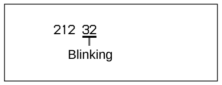
The menu number and current audio recording mode is displayed.
Example: 48 (2-channel mode with 48-kHz sampling frequency)



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the audio recording mode indication start blinking, then press the ADVANCE button.

This switches the mode setting to the other audio recording mode.
Example: 32 (4-channel mode with 32-kHz sampling frequency)



3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VCR menu.

Menu 213 Selecting Audio Reference Level

The audio reference level can be set to either of the following.

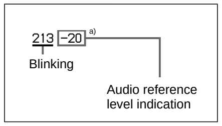
–20 dB (factory setting for DSR-300) or –18 dB (factory setting for DSR-300P): Audio reference level for professional use

–12 dB: Audio reference level commonly used for consumer DV (The maximum level is 0 dB.)

1 Display menu 213.

The menu number and current audio reference level is displayed.

Example: –20 dB (for DSR-300) or –18 dB (for DSR-300P)



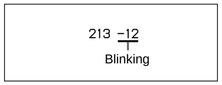
a) For DSR-300P: –18

If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the audio reference level display start blinking, then press the ADVANCE button.

This switches the setting to the other audio reference level.

Example: –12 dB



3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VCR menu.

When using the camcorder in a editing system containing both consumer DV and professional equipment, setting the audio reference level to –12 dB is recommended.

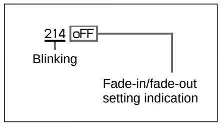
Changing the audio reference level setting from –20 dB (or –18 dB) to –12 dB increases the audio recording level by 8 dB (or 6 dB) whether the AUDIO SELECT (CH-1/CH-2) switch is set to AUTO or MANUAL.

Menu 214 Setting Fade-In/Fade-Out for the Audio Recording Start and Stop Points

You can reduce noise at back space editing points (if necessary) by setting the fade-in/fade-out to on. The fade-in/fade-out transition time is within one frame ($^{1}/_{30}$ seconds for DSR-300 or $^{1}/_{25}$ seconds for DSR-300P).

1 Display Menu 214.

The fade-in/fade-out is factory-set to oFF.



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the fade-in/fade-out setting indication start blinking, then press the ADVANCE button to change the setting to on.

3 Press the RESET/(MENU SET) button and then the MENU button.

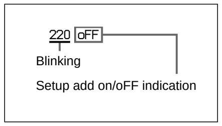
The settings are recorded and the display window returns to the display shown before the VCR menu.

Menu 220 Using Setup Add (for DSR-300 Only)

Use this menu to add setup to the playback video signals.

1 Display menu 220.

The setup add is factory-set to oFF.



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the setup add on/oFF indication start blinking, then press the ADVANCE button to change the setting to on.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VCR menu.

During recording the signal of the image being shot contains setup add, when it is output from the camcorder's S VIDEO OUT and MONITOR OUT connectors.
During playback, the setup is removed from the output video signal.
To have the setup added during playback, set the setup add to on.

White Balance Adjustment

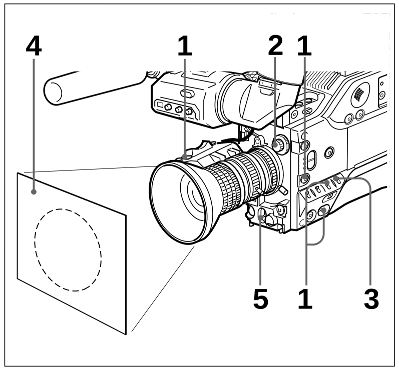
Adjusting the white balance ensures that as lighting conditions change white objects remain white in the image and tones remain natural.
The color of light emitted varies from one light source to another, and as the lighting changes the apparent color of an illuminated subject changes. It is therefore necessary to adjust the white balance each time the principal lighting source changes.

Saving an Appropriate White Balance Value in Memory

You can save two white balance values in separate memories, A and B. Unless changed, the saved values are retained for approximately ten years, even when the camcorder is powered off.
Once a value is saved, you can automatically restore the adjustment by moving the W. BAL switch to the A or B position. This makes shooting under alternating lighting conditions easy.

Separate white balance values for each FILTER control setting

In the default case, as described above, the same two A and B white balance values apply to all settings of the FILTER control. It is possible, however, to change the AWB MEM setting in advanced menu page 3 *(see page 85)* so that there are eight possibly different values for each of the A and B positions and for the four FILTER control settings.

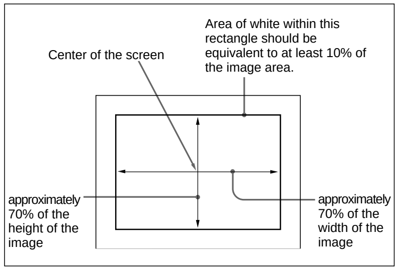


1 Make the following settings.
- POWER switch: ON
- OUTPUT/DL/DCC+ switch: one of the CAM positions
- Lens iris selector: A (automatic)
- ATW button: off

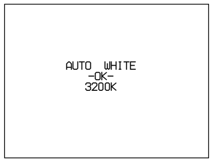
2 Set the FILTER control according to the lighting conditions. *(See page 47.)*

3 Set the W. BAL switch to A or B.

4 Arrange a white subject (paper, cloth, etc.) under the same lighting conditions as for shooting, and zoom in on it so that as far as possible the whole screen is white.
The minimum white area requirements for the adjustment are shown in the following figure.


Center of the screen
Area of white within this rectangle should be equivalent to at least 10% of the image area.
approximately 70% of the height of the image
approximately 70% of the width of the image

5 Push the WHT/BLK switch in the WHT direction and release.
The white balance adjustment is carried out.
During the adjustment the legend "AUTO WHITE -OP-" appears in the viewfinder.
After a few seconds the adjustment is complete, and the legend in the viewfinder changes to "AUTO WHITE -OK-" plus a color temperature, as shown in the following figure.



AUTO WHITE
-OK-
3200K

The adjustment value is automatically saved in memory A or B as selected above.

To save the white balance adjustment for different lighting conditions, repeat steps **2** to **4** above. You can save two different values for the white balance, in memories A and B.

To recall a white balance value from memory

Before beginning shooting, set the W. BAL switch to the A or B position. This automatically sets the camcorder to the white balance adjustment saved in the corresponding memory.

If white balance adjustment cannot be completed automatically

The warning message "AUTO WHITE -NG-" appears in the viewfinder.
Make the necessary corrections, then carry out the process again.

Warning messages for white balance adjustment

Message	Meaning and corrections to be made
AUTO WHITE -NG- :LOW LIGHT TRY AGAIN	Light level is too low. • Increase the illumination level, open the iris, or use the GAIN switch to increase the video signal level. • Check the setting of the FILTER control. • After these checks, retry the adjustment.
AUTO WHITE -NG- : ?? TRY AGAIN	The subject is not white, or the lighting level is too high. • Use a white subject. • Lower the illumination level, stop down the iris, or use the GAIN switch to decrease the video signal level. • Check the setting of the FILTER control. • After these checks, retry the adjustment.
AUTO WHITE -NG- :C.TEMP.LOW CHG.FILTER TRY AGAIN	The color temperature is too low. Try the following, in this order of precedence. (1) If the FILTER control is in position 2, 3 or 4, change it to position 1, then retry the adjustment. (2) Check that the subject is completely white, then retry the adjustment. (3) The color temperature may be outside the range of the camcorder. Fit an appropriate color temperature conversion filter, then retry the adjustment.
AUTO WHITE -NG- :C.TEMP.HI CHG.FILTER TRY AGAIN	The color temperature is too high. Try the following, in this order of precedence. (1) If the FILTER control is in position 1, change it to position 2, 3 or 4, then retry the adjustment. (2) Check that the subject is completely white, then retry the adjustment. (3) The color temperature may be outside the range of the camcorder. Fit an appropriate color temperature conversion filter, then retry the adjustment.
WHITE:PRESET	The W. BAL switch is in the PRESET position. Move the W. BAL switch to the A or B position.
BARS	The camcorder is outputting a color bar signal. Move the OUTPUT/DL/DCC+ switch to one of the CAM positions.

Using the Preset White Balance Settings

The camcorder provides two preset white balance settings, for instant shooting with approximately the correct adjustment.
There are also particular shooting conditions under which the preset values may give better results than the human eye adjustment.

1 Set the W. BAL switch to PRESET.

2 Set the FILTER control.

The white balance is automatically adjusted for 3200 K when the FILTER control is in position 1 and for 5600 K in position 2, 3 or 4.

To switch the 3200 K preset to the 3000 K preset

Change the setting in advanced menu page 3 *(see page 85)*. Depending on shooting conditions, select the better one.

Light Sources and Color Temperature

Adjustment of the white balance to match the light source is essential to ensure correct color rendering. The color of a light source is indicated as a color temperature in kelvins (K). It is higher for bluish light, and lower for reddish light. When the camcorder is shipped it is adjusted for use with video lights (studio lamps with a color temperature of 3200 K). For use with other light sources, therefore, adjustment is required.

First use the FILTER control to set the approximate color temperature, then carry out white balance adjustment.

The following table shows typical color temperature values for different light sources.

Color temperatures of different light sources

Light source		Color temperature (K)	
Natural	Artificial		
Clear sky			10,000
Light cloud			8,000
Cloudy or rainy skies		Blue light	7,000
			6,000
	Fluorescent light (daylight white)		5,000
Direct sunlight, noon	Mercury lighting		
	Fluorescent light (white)	White light	
One hour after sunrise or before sunset	Fluorescent light (warm white)		4,000
			3,500
	Studio lighting		3,200
	Halogen lamps and video lights	Yellow light	3,000
			2,500
Thirty minutes after sunrise or before sunset	Incandescent lighting		
	Sodium street-lighting		
Sunrise or sunset	Candlelight	Red light	2,000

Using the ATW (Auto Tracing White Balance) Function

The ATW function continuously adjusts the white balance automatically to adapt to changes in lighti conditions.

Note

Depending on the shooting conditions, automatic adjustment may not necessarily give optimum results. For the best possible results, use the W. BAL switch.

To use the ATW function

Press the ATW button turning the indicator on.

This activates the ATW function, and the ATW indication appears in the viewfinder.

To disable the ATW function, press the ATW button again, turning the indicator off.

If the ATW function does not operate correctly

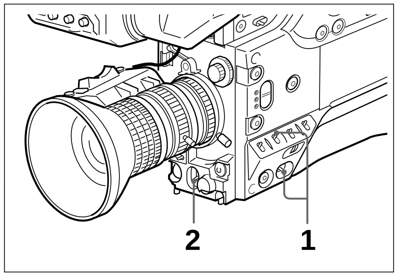
A warning message appears in the viewfinder as shown in the table below.

Message	Meaning and correction to be made
:C.TEMP.LOW	If the FILTER control is in position 2, 3 or 4, change it to position 1, then retry the ATW operation.
:C.TEMP.HIGH	If the FILTER control is in position 1, change it to position 2, 3 or 4, then retry the ATW operation.

Black Balance Adjustment

Correct adjustment of the black a balance is important for optimum operation of a camcorder. It is necessary when using the camcorder for the first time or after a significant period out of use, and also when there has been a sudden change in temperature.

The adjustment value is saved in memory, and readjustment is not normally necessary after powering the camcorder off or simply when lighting conditions change.

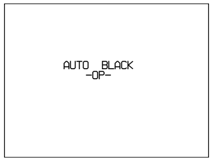


1 Turn on the power and check that the OUTPUT/DL/DCC+ switch is in one of the CAM positions.

2 Push the WHT/BLK switch in the BLK direction and release.

The lens iris closes, and black balance adjustment is carried out.

During the adjustment the legend “AUTO BLACK -OP-” appears in the viewfinder.



After a few seconds the adjustment is complete, and the legend in the viewfinder changes to “AUTO BLACK -OK-”.

If black balance adjustment cannot be completed automatically

The warning message “AUTO BLACK -NG-” appears in the viewfinder.

Make the necessary corrections, then carry out the process again.

Warning messages for black balance adjustment

Message	Meaning and corrections to be made
AUTO BLACK -NG- : IRIS NOT CLOSED TRY AGAIN	The lens iris did not close fully. Check whether the lens cable is connected properly, and whether there is a fault in the lens. If a second attempt to carry out the adjustment fails, consult your Sony dealer.
AUTO BLACK -NG- : ?? TRY AGAIN	The iris opened during adjustment or there is a hardware error. Close the iris and try again. If this fails, consult your Sony dealer.
BARS	The camcorder is outputting a color bar signal. Move the OUTPUT/DL/DCC+ switch to one of the CAM positions.

Shutter Settings

This section covers the settings for electronic shutter speed, CLS (clear scan) and EVS function.
The new value for the shutter speed or clear scan frequency and EVS setting remains set until changed, even when the camcorder is powered off.

Shutter speeds

There are five shutter speeds, from $^{1}/_{100}$ s (DSR-300) or $^{1}/_{60}$ s (DSR-300P) to $^{1}/_{2000}$ s. Increasing the shutter speed reduces blurring when shooting a fast-moving subject. It is also possible to reduce flicker when shooting under fluorescent lighting by changing the shutter speed.

CLS (Clear Scan) function

When shooting a computer screen or projected image, horizontal bands may appear in the camcorder image. This is because the vertical scan frequency of the computer-generated image is different from the vertical scan frequency of the video system. The clear scan function allows you to select a vertical scan frequency to reduce this interference.

EVS (Enhanced Vertical Scan)

This function enhances the vertical scan resolution from 400 to 450 lines (or 450 to 530 lines) to reduce flicker. However, this increases the aliasing.

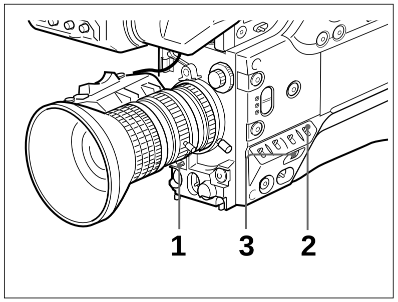
Setting the shutter speed, CLS and EVS function

Notes on setting the shutter speed

- The faster you make the shutter speed, the darker the image becomes. Check the brightness in the viewfinder, and if necessary increase the lighting level or adjust the iris.
- When the shutter speed is very fast, shooting a high intensity subject may cause long vertical tails to appear on the highlights (smear).

Note on setting the CLS function

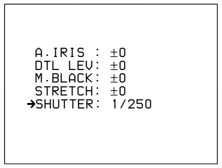
The vertical scan frequencies of computer screens vary, and it may not be possible to eliminate the interference patterns entirely. Note also that the vertical scan frequency may change depending on the software being run.



1 Set the SHUTTER switch to the ON position.

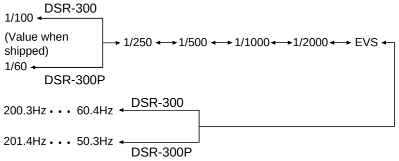
The SHUTTER indicator in the viewfinder comes on, and it is now possible to change the shutter speed or clear scan frequency setting and to set the EVS function. (If the EVS is already selected, the SHUTTER indicator will not light.)

2 Operate the MENU switch and MENU dial to align the cursor with the item “SHUTTER” in basic menu page 1.



```
 A.IRIS : ±0
 DTL LEV: ±0
 M.BLACK: ±0
 STRETCH: ±0
→SHUTTER: 1/250
```

3 Turn the MENU dial to select the required shutter speed, scan frequency or EVS.
The shutter speed or clear scan frequency setting changes in the following order:



When using the clear scan function
Watching the monitor screen, adjust the frequency to give minimum interference.
If there is a black band in the monitor image, reduce the frequency, and if there is a white band, increase the frequency.

To return from the basic menu to the normal indications

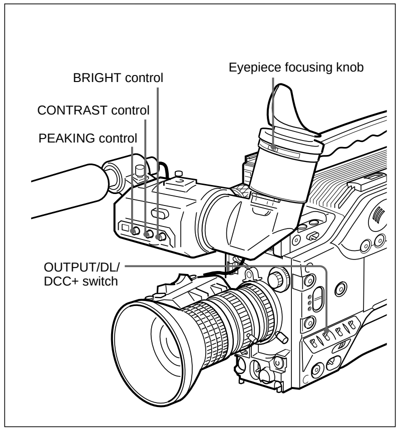
Press the MENU switch as many times as necessary until the normal indications appear. The new setting of the shutter speed or clear scan frequency appears in the normal screen display.

When shooting is finished

Set the SHUTTER switch to the OFF position.
The SHUTTER indicator in the viewfinder goes off.

Viewfinder Screen Adjustments

The following adjustments are provided to improve the visibility of the viewfinder screen.
Although these adjustments may make the viewfinder image clearer, they have no effect on the output video signal from the camcorder.



Adjusting the eyepiece focus

Depending on the eyesight of the operator — whether longsighted or shortsighted — the optimal position of the viewfinder image varies. Adjust the eyepiece focus to get the clearest viewfinder image for your eyesight. First focus the image with the lens, then adjust the eyepiece focusing knob. The adjustment range is from –3 to 0 diopters[1] (default when shipped is 0 diopters).
Using an optional part allows you to modify the adjustment range to –2 to +1 diopters or –0.5 to +3 diopters.

For details, consult your Sony dealer.

Contrast and brightness adjustment

Carry out these adjustments with the color bars displayed.

1 Set the OUTPUT/DL/DCC+ switch to the BARS position.
The color bars appear in the viewfinder.

2 Watching the color bars, turn the CONTRAST and BRIGHT controls to adjust the contrast and brightness.

3 Return the OUTPUT/DL/DCC+ switch to its original position.

Outline emphasis adjustment

Turning the PEAKING control changes the degree of outline emphasis in the viewfinder image, to make focusing easier.

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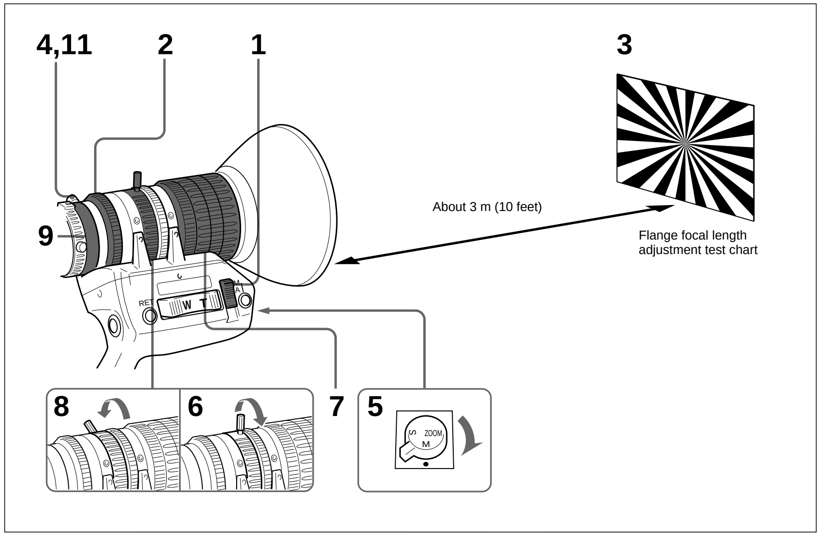
[1] **Diopter:** A unit to indicate the degree of convergence or divergence of a bundle of rays.

Adjusting the Lens

Flange Focal Length Adjustment

It is necessary to adjust the flange focal length (the distance from the lens flange to the plane of the image along the optical axis) in the following cases.

- When a lens is fitted for the first time
- After changing lenses
- When during zoom operations the focus does not match properly from telephoto to wide angle



1 Set the iris selector to the M position.

2 Turn the iris ring to f/1.4 (fully open).

3 Place the supplied flange focal length adjustment test chart at a range of about 3 meters (10 feet), and adjust the lighting so that an appropriate video output level is obtained with the iris at f/1.4.

4 Loosen the screw of the Ff adjustment ring.

5 Set the ZOOM selector to the M position.

6 Move the manual zoom control to the telephoto position.

7 Turn the focusing ring so that the test chart is in focus.

8 Move the manual zoom control to the wide angle position.

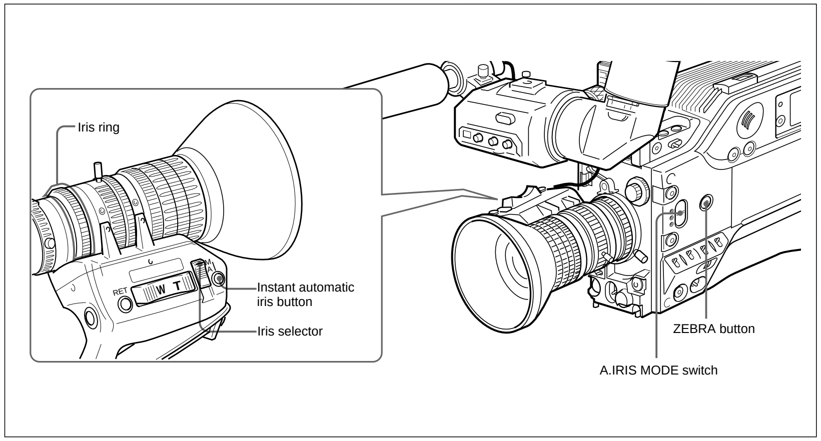
9 Turn the Ff adjustment ring so that the test chart is in focus. Do not move the focusing ring.

10 Repeat steps **6** to **9** until the image stays in focus from telephoto to wide angle.

11 After adjustment, tighten the screw of the Ff adjustment ring.

http://getMANUAL.com

Iris Adjustments



There are three ways of adjusting the iris: automatically, manually, and with the instant automatic iris adjustment function.

Iris adjustment

Adjustment method	Operation
Automatic adjustment mode The iris is adjusted automatically to adapt to changes in the brightness of the subject. This is the mode for normal shooting.	Set the iris selector to the A position.
Manual adjustment mode Use this mode in the following cases: • For special effects • When filming a person with a very bright sky background • When shooting a subject with extreme contrast The zebra pattern can be used as a guideline for iris adjustment.	Set the iris selector to the M position and turn the iris ring as required.
Instant automatic adjustment function While in manual adjustment mode, this function makes a temporary automatic adjustment.	With the iris selector in the M position, hold down the instant automatic iris button for as long as necessary.

To make the image lighter when shooting against the light

In the automatic iris adjustment mode, set the A.IRIS MODE switch to BACK L, turning the indicator on.

To make the image clearer when shooting a subject lit by a spotlight

In the automatic iris adjustment mode, set the A.IRIS MODE switch to SPOT L, turning the indicator on.

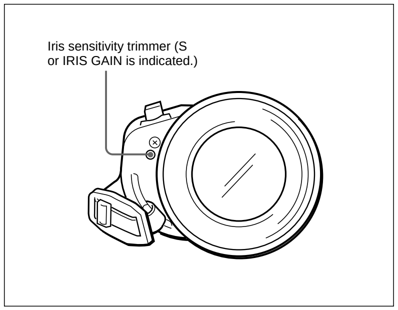
Using the zebra pattern in manual adjustment mode

To use the zebra pattern as a guideline for iris adjustment in manual adjustment mode, press the ZEBRA button to set it on.
Select the zebra pattern to be displayed in advanced menu page 4 *(see page 86)*.

- **When the subject is a person**
  Adjust the iris manually so that the zebra pattern appears on the highlights of the subject's face.
- **For other subjects**
  Adjust the iris manually so that the zebra pattern appears on the most important parts of the subject.

Adjusting the Iris Sensitivity

You usually need not adjust the iris sensitivity because lenses are equipped with iris sensitivity adjustment function.
In auto iris mode, if hunting or response delay happens, adjust the iris sensitivity using the iris sensitivity trimmer.

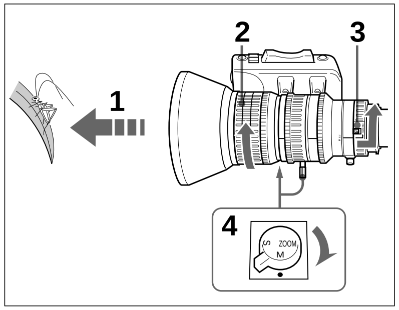


You can see the iris sensitivity trimmer when removing the gum cap on the front of the lens driving unit. Use a mini-screwdriver to turn the trimmer. If you turn it clockwise, the sensitivity increases, and if you turn it counterclockwise, the sensitivity decreases. It is recommended that you confirm the iris sensitivity after replacing the lens.

For more information, refer to the operating instructions for the lens (or consult the lens maker).

Macrophotography

Use the macro function when the subject is less than about 1.1 m (4 feet) (for the VCL-714BXA) from the front of the lens. It is possible to shoot close-ups down to a range of 10 mm (wide angle, f = 7.5 mm).



1 Bring the lens up to the subject so that the image is the required size.

2 Move the focusing ring to the closest focus position.

3 Slide the MACRO button toward the rear of the camcorder, and turn the MACRO ring fully in the direction shown by the arrow.

4 Move the ZOOM selector to the M position, and turn the manual zoom control to focus the image.

Ending close-up shooting

Return the MACRO ring to its original position (turn fully in the opposite direction to the arrow in the figure).

Reducing the size of the image

After completing steps **1** to **4** above, if you wish to reduce the size of the image, turn the MACRO ring back slightly, then use the manual zoom control again to focus the image.

Settings for Special Cases

Settings for special cases

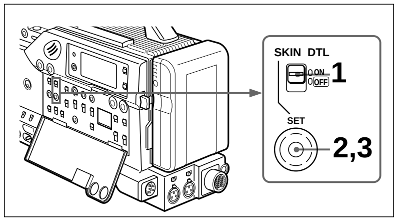
Shooting conditions	Setting	Effect
The background is very bright, and the subject is too dark.	Set the A.IRIS MODE switch to BACK L, turning the indicator on.	This lightens the foreground.
The subject is under a spotlight.	Set the A.IRIS MODE switch to SPOT L, turning the indicator on.	This prevents white burn-out in highlights of faces and clothes.
The subject is completely still (e.g. when shooting documents, drawings, etc.).	Enable the EVS (Enhanced Vertical definition System) function. *(See page 104.)* **Note** Enabling the EVS function tends to increase the occurrence of aliasing problems (moiré patterns). Therefore, normally leave the function disabled.	This enhances the vertical resolution.
When you wish to give a lush effect, as when shooting a wedding or similar occasion.	Set the MATRIX switch to H.SAT. *(See page 21.)*	This increases the saturation of primary colors.
Shooting under fluorescent lighting.	Set the MATRIX switch to FL. *(See page 21.)*	This eliminates the blue-green cast, and restores natural hues.
When shooting bright areas mixed with dark areas (Example: A person indoors looking through a window at a bright landscape outdoors)	Set DL to ON in the advanced menu page 2 and, then set the OUTPUT/DL/DCC+ switch to CAM DL. *(See page 85.)*	Prevents white breakup and color faults in bright areas.
When adjusting for skin detail or tone (Example: When shooting to hide skin details)	See "Skin Detail Correction" or "Adjusting Color in the Specified Area" *(page 111).*	Adjusts the skin detail or tone to a designated active area.
To make focusing before shooting easier.	Press the EZ FOCUS button, turning the "easy focus" function on. *(See page 12.)*	This opens the iris, to make it easier to focus before beginning shooting.
To begin shooting immediately when there is no time to make adjustments.	Press the EZ MODE button, turning the "EZ mode" function on. *(See page 13.)*	This provides automatic adjustment to a set of standard values, to allow immediate shooting.
The 3200 K preset white balance makes the picture reddish.	Select the 3000 K preset white balance in advanced menu page 3. *(See page 85.)*	This prevents the picture from reddening.

Skin Detail Correction

The DSR-300/300P provides an easy push-button function that designates an active skin tone area

Note

The SKIN DTL SET button is disabled while a title is displayed in basic menu page 7 or color bars are displayed. Before skin detail correction, clear the title or color bars display.



1 Set the SKIN DTL switch to ON.

The indication "SKIN AREA: ±0" appears in the viewfinder.

2 Press the SKIN DTL SET button.

This causes the area detect cursor to be shown in the viewfinder (for 10 seconds).

3 Place the area detect cursor on the target, then press the SKIN DTL SET button.

This designates the correction area, which is indicated by a zebra pattern, and the indication "SKIN AREA: ±0" appears again. If the area detect cursor disappears before designating the area, press the SKIN DTL SET button again to display the cursor. (Return to step **2**.)

4 Turn the MENU dial to change the SKIN AREA value (–99 to +99)so that the zebra pattern may be displayed in the target area.
Use basic menu page 1 to set the correction level *(see page 78)*.

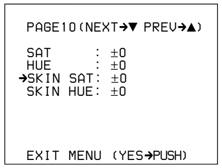
You can also change color in the designated area *(see the following section)*.

Adjusting Color in the Specified Area

You can adjust the color of the specified area. Perform the same procedure as for the skin detail correction to designate the target area.

1 Turn the POWER switch on with holding down the MENU dial so that you can access the advanced menu.

2 Display advanced menu page 10.



```
PAGE10(NEXT➔▼ PREV➔▲)

SAT      : ±0
HUE      : ±0
➔SKIN SAT: ±0
SKIN HUE: ±0



EXIT MENU (YES➔PUSH)
```

3 Perform the procedure for the skin detail correction to designate the area to which you apply color adjustment.

While this procedure is being performed, the menu is not displayed.

4 When advanced menu page 10 appears, change the value of the SKIN SAT or SKIN HUE to adjust color in the area designated in step **3**.

Note

Set the SKIN DTL to 1.0 in basic menu page 1 if the skin detail correction is unnecessary.

Important Notes on Operation

Fitting the zoom lens
It is important to fit the lens correctly, as otherwise damage may result. Be sure to refer to the section “Fitting the Lens” *(See page 32)*.

Do not cover the unit while operating
Putting a cloth, for example, over the unit can cause excessive internal heat build-up.

Operation and storage
Avoid storing or operating the unit in the following conditions.

- In excessive heat or cold (operating temperature range: 0°C to 40°C (32°F to 104°F))
  Remember that in summer in warm climates the temperature inside a car with the windows closed can easily exceed 50°C (122°F).
- In damp or dusty locations
- Locations where the unit may be exposed to rain
- Locations subject to violent vibration
- Close to radio or TV transmitters producing strong electromagnetic fields.

Viewfinder

- Do not leave the unit with the eyepiece pointing directly at the sun.
  The eyepiece lens can concentrate the sun’s rays and melt the interior of the viewfinder.
- Do not use the viewfinder close to strong magnetic fields. This can cause picture distortion.

Avoid violent impacts
Dropping the unit, or otherwise imparting a violent shock to it, is likely to cause it to malfunction.

After use
Turn the POWER switch off.

When not use for a period time
Remove the battery pack.

Shipping

- Remove the cassette before transporting the unit.
- Use the optional LC-421 Carrying Case for optimal shipping.
  If sending the unit by truck, ship, air or other transportation service, first store it in the carrying case, then pack the carrying case in the carton (supplied with the LC-421) or an equivalent.

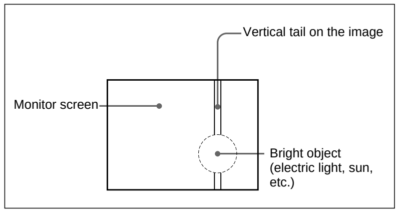
Care of the unit
Remove dust and dirt from the surfaces of the lenses or optical filters using a blower.
If the body of the unit is dirty, clean it with a soft, dry cloth. In extreme cases, use a cloth steeped in a little neutral detergent, then wipe dry. Do not use organic solvents such as alcohol or thinners, as these may cause discoloration or other damage to the finish of the unit.

In the event of operating problems
If you should experience problems with the unit, contact your Sony dealer.

Characteristics of CCD Sensors

The following effects may appear in the image. They are characteristic of camcorders using CCDs (charge-coupled devices), and do not indicate a malfunction.

Vertical smear
When shooting a very bright object, such as a light, the highlight tends to produce vertical tails. This effect is much reduced in this camcorder. (Use of the electronic shutter increases this effect.)


Vertical tail on the image
Monitor screen
Bright object (electric light, sun, etc.)

White flecks
If the camcorder is operated at a high temperature, white flecks may appear in the image.

Cleaning the Video Heads

Always use the special-purpose Sony DVM-12CL Cleaning Cassette for cleaning the audio and video heads. Follow the instructions with the cleaning cassette carefully, as inappropriate use of the cleaning cassette can damage the heads.

Note

The DVM-12CL Cleaning Cassette can be used only once. When the DVM-12CL is loaded in the camcorder, only STOP, PLAY and EJECT buttons function.

Replacing the video heads

If cleaning the video heads fails to restore picture quality, the heads may be due for replacement.
Keep a check of the hours of head drum operation: with normal use, **the heads should need replacing after about 1,500 hours of use.**
When the heads need replacement, contact your Sony dealer.

Check the hours of head drum operation using the VCR menu. For details see "Checking the Total Operating (Power-On) Hours — Menu 201" on page 93.

Replacing other parts

For replacement of all parts other than the video heads, contact your Sony dealer.

Warning System

When the camcorder is powered on, or if a fault occurs during operation, a warning is given in the following ways:

- By warning indications in the display window.
- By means of the WARNING indicator together with a warning tone from the speaker or earphone.
- By the warning indicators in the viewfinder.

You can adjust the volume of the warning tone with the ALARM knob. When this knob is turned to the minimum position, there is no sound output at all.

Operation warnings and action to be taken

Display window		WARNING indication	Warning tones	Viewfinder indicators		Problem	Machine action	What to do
				REC/TALLY	BATT			
Warning indication	State (blinking/ Continuous)	☼ Continuous ✹ 1 blinks/s ✹))) 4 blinks /s	Continuous ●))))))))) 1 beep/s ●)))) 4 beeps /s ●) ●) ●) ●)	☼ Continuous ✹ 1 blinks/s ✹))) 4 blinks/s				
RF	Continuous a)	✹))) a)	●) ●) ●) ●) a)	✹))) a)		Video head gaps clogged or problem in recording circuit.	After detecting head clogging, recording continues but quality is poor.	Clean the heads. If the problem persists, power off, and consult your Sony dealer.
SERVO	Continuous a)	✹))) a)	●) ●) ●) ●) a)	✹))) a)		Servo lock lost.	Recording continues but quality is poor.	Power off, and consult your Sony dealer.
HUMID	Continuous	☼	●)))))))))	✹)))		Condensation on head drum.	The VCR stops, and all operations are inhibited except eject.	Without powering off, wait until the HUMID indication disappears.
SLACK	Continuous	✹)))	●)))))))))	✹)))		The tape cannot be wound properly.	Operation stops.	Consult your Sony dealer before doing anything. d)
TAPE	Blinking a) (1 blink/s)	✹ a)	●)))) c)	✹ c)		Close to the end of tape.	Operation continues.	Replace the cassette as soon as possible.
	Blinking (4 blinks/s)	☼	●)))))))))	✹)))		End of tape.	Recording, playback or fast forward stops.	Replace the cassette or rewind.
BATT	Blinking (1 blink/s)	✹	●)))) b)	✹ b) | ✺ c) (Blinking in reverse phase)	✹	Battery almost exhausted.	Operation continues.	Replace the battery as soon as possible.
	Blinking (4 blinks/s)	☼	●)))))))))	✹	☼	Battery exhausted.	Operation stops.	Replace the battery.

a) During recording or at recording pause.
b) Except during playback, fast forward, rewind and recording review
c) During recording only
d) Do not operate the camcorder with "SLACK" indication displayed or **the tape may be damaged.**

For details of warning messages displayed in the viewfinder, see page 75.

Condensation

If you move a camcorder suddenly from a very cold place to a warm place, or use it in a very humid location, condensation may form on the head drum. If it is operated in this state, the tape may adhere to the drum, and cause a failure or even permanent damage. Take the following steps to prevent this from happening:

- Remove the cassette before moving the camcorder from a very cold place to a warm place.
- Before inserting a cassette, turn the power on, and check that the HUMID indication is not showing in the display window. If it is showing, wait — do not insert a cassette until the HUMID indication disappears. You can save waiting time if you keep the camcorder powered.

For details of cassette insertion and removal, see the section "Recording on the Internal VCR" on page 50, and for details of the HUMID indication, see the section "Warning System" on page 115.

Troubleshooting

You can use this chart to establish possible causes of an apparent problem; always double-check before sending the unit for repair. If a problem persists, contact your Sony dealer.

Troubleshooting chart

Symptoms	Cause	Remedy
The unit does not power on when you turn the POWER switch on.	There is no battery pack loaded.	Load a battery pack (page 44).
	The battery pack has reached the end of its usable life.	Replace the battery pack with a fully charged one (page 44).
	The AC power adaptor is not connected, or it is not turned on.	Connect the AC power adaptor (page 45).
The tape transport does not operate when you press either VTR button.	The POWER switch of the unit is turned off.	Turn the POWER switch on (page 13).
	The unit has reached the end of tape.	Rewind the tape, or load a new cassette (page 51).
	The cassette is set record-inhibited.	Either load a new cassette, or release the record-inhibit (page 50).
	An incorrect type of DVCAM or DV cassette is loaded. (The C// indication blinks.)	Load a correct type of DV or DVCAM cassette (page 49).
The tape transport does not operate when you press any tape transport button.	The unit has reached the end of tape.	Either rewind the tape, or load a new cassette (page 51).
	The cassette holder is not solidly closed after the cassette is inserted.	Press on the "PUSH" indication to close the holder solidly (page 51).
The power supply cuts while operating.	The battery pack is exhausted.	Replace the battery pack with a fully charged one (page 44).
The battery goes dead very quickly.	The operating temperature is very low.	Use a BP-L60/L60A or BP-L90/L90A (page 44).
	The battery pack is inadequately charged.	Recharge the battery pack (page 44).
It is not possible to eject the cassette.	The battery pack is exhausted.	Replace the battery pack with a fully charged one (page 44).
	The POWER switch is turned off.	Turn the POWER switch on. (page 13)
	The cassette holder is not solidly closed after the cassette is inserted.	Press on the "PUSH" indication to close the holder solidly and then press the EJECT button (page 51).
The playback picture quality is poor.	The video heads are dirty.	Clean the video heads using a DVM-12CL Cleaning Cassette (page 114).
The playback picture does not appear.		
The playback sound does not hear.		
All controls except the EJECT button are disabled.	There is condensation on the head drum.	Remove the cassette, power off, and wait until the condensation has evaporated (page 116).
Audio recording is not possible.	The AUDIO LEVEL (CH-1/CH-2) knobs are set to the minimum level.	Adjust the setting of the AUDIO LEVEL (CH-1/CH-2) knobs (page 15).
	The AUDIO LEVEL knob on the front is set to the minimum level.	Adjust the setting of the AUDIO LEVEL knob (page 11).
The recorded sound is distorted.	The audio level is too high.	Adjust the setting of the AUDIO LEVEL (CH-1/CH-2) knobs, and record again (page 15).
The recorded sound has a high noise level.	The audio level is too low.	Adjust the setting of the AUDIO LEVEL (CH-1/CH-2) knobs, and record again (page 15).
The indication "Er91-13F" appears in the display window.	The unit has failed in loading or saving the cassette memory data.	Load a new cassette (page 51).
The cassette is automatically ejected.	An incorrect type of cassette is loaded.	Load a correct type of cassette (page 49).

(Continued)

Troubleshooting chart (continued)

Symptoms	Cause	Remedy
The time code setting is not possible.	At the recording, the ClipLink function is set to on (meaning ClipLink shooting is allowed) in menu 211, **CONT** is displayed in the display window and the time code generator is in the REGEN mode.	Only the REGEN mode can be used for ClipLink shooting. If you will not perform ClipLink shooting, set the ClipLink function to oFF (see page 97).
The time code value does not advance though the TC mode switch 1 or 2 is set to the F-RUN or DATE/TIME.		

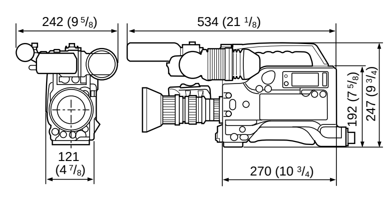
Specifications

DSR-300/300P

Imaging element	Three-chip interline transfer CCD
Pixel resolution	768 (horizontal) × 494 (vertical) (DSR-300) 752 (horizontal) × 582 (vertical) (DSR-300P)
Imaging area	6.4 × 4.8 mm (corresponds to $^1/_2$-inch picture tube)
Built-in filter settings	1: 3200K 2: 5600K + $^1/_8$ND 3: 5600K 4: 5600K + $^1/_{64}$ND
Lens mount	Sony $^1/_2$-inch bayonet mount
Signal standards	EIA standard signal (NTSC color system) (DSR-300) CCIR standard signal (PAL color system) (DSR-300P)
Scanning system	525 lines, 2:1 interlace (DSR-300) 625 lines, 2:1 interlace (DSR-300P)
Scanning frequencies	Horizontal: 15.734 kHz (DSR-300) 15.625 kHz (DSR-300P) Vertical: 59.94 Hz (DSR-300) 50.00 Hz (DSR-300P)
Synchronization	Internal sync External sync, using signal input (VBS or BS) to the GEN LOCK IN connector or input to the VTR connector.
Horizontal resolution	800 TV lines (center)
Minimum illumination	0.5 lux (at f/1.4, +36 dB) 0.8 lux (at f/1.8, +36 dB)
Sensitivity	2000 lux (f/11.0 standard, 3200 K)
Gain levels	Selectable –3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 18 dB, 18 dB + DPR, 24 dB, 24 dB + DPR, hyper gain (30 dB + DPR)
Video S/N ratio (output from the VIDEO OUT connector)	62 dB (typical) (DSR-300) 60 dB (typical) (DSR-300P)
Registration	0.05% for all zones, without lens
Input connectors	AUDIO IN CH-1/CH-2:XLR-3 pin × 2, male –60 dBu, 3 kΩ +4 dBu, 10 kΩ (0 dBu = 0.775 Vrms) GEN LOCK IN: BNC 1.0 Vp-p, 75 Ω TC IN: BNC 0.5 to 18 Vp-p, 10 kΩ DC IN: XLR-4 pin, female
Output connectors	AUDIO OUT CH-1/CH-2: phono jack –10 dBu, 47 kΩ (0 dBu = 0.775 Vrms) VIDEO OUT: BNC, 1.0 Vp-p, 75 Ω MONITOR OUT: BNC, 1.0 Vp-p, 75 Ω S VIDEO OUT: DIN 4 pin 1.0 Vp-p, 75 Ω TC OUT: BNC, 1.0 Vp-p, 75 Ω DC OUT: XLR-4 pin, male EARPHONE: mini-jack –∞ to –15.5 dBu variable, 8 Ω
Control connectors	LENS: 12-pin VF: 20-pin REMOTE 1: stereo mini-jack REMOTE 2: 10-pin LIGHT : 2-pin VTR: 26-pin
Power supply	11 to 17 V DC
Power consumption	20 W
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Mass	3.3 kg approx. (7 lb 4 oz) (camcorder only)

Specifications

External dimensions in millimeters (inches)



Tape transport system

Tape speed	Approx. 28.2 mm/s
Recording/playback time (using PDV-184ME)	Max. 184 minutes
Fast forward/rewind time (using PDV-184ME)	Max. 12 minutes

Usable cassettes

Model name	Size
PDV-64ME/94ME/124ME/184ME	Standard size
PDV-12ME/22ME/32ME/40ME	Mini size

Video system (at playback with the DSR-85/85P)

Bandwidth	Luminance (Y)	DSR-300: 30 Hz to 5.0 MHz ±1.0 dB DSR-300P: 25 Hz to 5.5 MHz +1.0/–2.0 dB
	Chrominance (R–Y/B–Y)	DSR-300: 30 Hz to 1.5 MHz +1.0/–5.0 dB DSR-300P: 25 Hz to 2.0 MHz +1.0/–2.0 dB
S/N ratio	Luminance	Min. 55 dB
K-factor (K2T, KPB)		Max. 2%
Y/C time delay		Max. 30 nsec.

Audio system (at playback with the DSR-85/85P)

Frequency response	2-channel mode: 20 Hz to 20 kHz +0.5/–1.0 dB 4-channel mode: 20 Hz to 14.5 kHz +0.5/–1.0 dB
Dynamic range	Min. 80 dB
Distortion (THD) (1 kHz, reference level, 48 kHz)	Max. 0.08%

VCL-714BXA Zoom Lens

Focal length	7.5 to 105 mm
Zoom	Manual or power, selectable; zoom ratio: ×14
Maximum aperture	1:1.4
Iris	Manual or automatic, selectable; f/1.4 to f/16 and C (closed)
Subject area (at 1.1 m (4 feet))	Wide angle: 880 × 660 mm ($34^{3}/_{4}$ × 26 inches) Telephoto: 63 × 47 mm ($2^{1}/_{2}$ × $1^{7}/_{8}$ inches)
Focusing range	Infinity to 1.1 m
Filter attachment threads	72 mm dia., 0.75 mm pitch (on lens) 86 mm dia., 1 mm pitch (on lens hood)
Mounting	Sony $^{1}/_{2}$-inch bayonet mount
Mass	1.1 kg approx. (2 lb 6 oz) (including lens hood)
External dimensions	110 × 186 mm (diameter × length) ($4^{3}/_{8}$ × $7^{3}/_{8}$ inches) (with lens hood, focused at infinity)

DXF-701WS/701WSCE Viewfinder

Picture tube	1.5-inch monochrome
Indicators	REC/TALLY (×2), BATT, SHUTTER, GAIN UP
Resolution	600 TV lines
Power supply	12 V DC
Power consumption	2.1 W
Mass	660 g approx. (1 lb 7 oz)
Maximum external dimensions	236 (W) × 85 (H) × 219 (D) mm ($9^{3}/_{8}$ × $3^{3}/_{8}$ × $8^{5}/_{8}$ inches)

Supplied accessories

LC-300SFT Soft Carrying Case[1] (1)
VCL-714BXA Zoom Lens[2] (1)
DXF-701WS/701WSCE Viewfinder (1)
Microphone (1)
Wind screen (1)
VCT-U14 Tripod Adaptor (1)
Shoulder strap (1)
RM-LG1 Remote Control Unit (1)
Lens mount cap (1)
Flange focal length adjustment test chart (1)
Switch guard (1)
Operating Instructions (1)
ClipLink™ Guide (1)

Design and specifications are subject to change without notice.

Related Products

There is a range of Sony products available to meet every conceivable video shooting requirement. For details, consult your Sony sales representative or supplier.

Lenses

VCL-714BXA Zoom Lens
LO-32BMT $^{2}/_{3}$" lens adapter

Remote control unit

RM-M7G/LG1 Remote Control Unit

VTR products

VO-8800/8800P Portable Videocassette Recorder
BVU-150/150P Portable Videocassette Recorder
BVV-5/5PS Videocassette Recorder
BVW-50/50P Portable Videocassette Recorder
VA-5/5P/90/90P VTR Adaptor

Battery products

BP-L40/L60/L60A/L90/L90A Battery Pack
NP-1B/BP-90A Battery Pack
BC-1WD/1WDCE/410/410CE Battery Charger
BC-L50/L100/L100CE Battery Charger

AC power supply

CMA-8A/8ACE AC Adaptor
AC-550/550CE/DN1 AC Adaptor

Synthesized tuner products

CA-WR855 Camera Adaptor
WRR-810A/855A/860A UHF Synthesized Tuner

Microphone products

ECM-670/672 Electret Condenser Microphone
C-74 Condenser Microphone
CAC-12 Microphone Holder
EC-0.5C2/0.3C2 Microphone Cable

Studio equipment

SEG-2550A/2550AP Special Effects Unit
CRK-2000/2000P Chroma Keyer
WEX-2000 Wipe Pattern Extender
DXF-51/51CE 5-inch Viewfinder (monochrome)

Cables and miscellaneous

The suffix number on a cable part number indicates the length in meters: e.g. a CCZ-A2 is 2 meters long. (Approximate equivalents in feet: 2 m = 6 ft, 5 m = 16 ft, 10 m = 33 ft, 25 m = 82 ft, 50 m = 164 ft, 100 m = 328 ft)

- Camera cables with Z-type 26-pin connectors
  - CCZ-A2/A5/A10/A25
- Camera cables with Q-type 14-pin connectors
  - CCZQ-A2/A5/A10/A2AM
- CCZJ-2 Camera Cable with Z-type 26-pin connector and J-type 10-pin connector
- LCR-1 Rain Cover
- LC-421 Carrying Case
- LC-300SFT Soft Carrying Case

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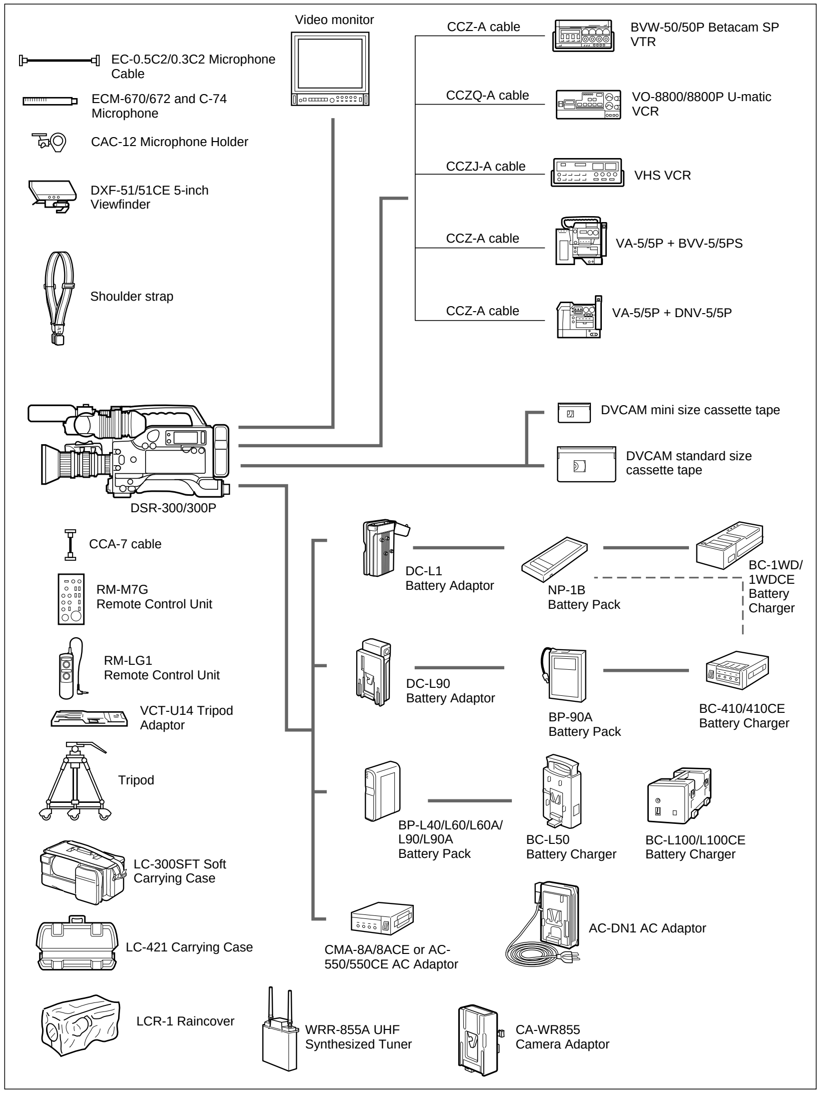
[1] DSR-300F/300PF
[2] DSR-300F/300PF/300K/300PK

Chart of Optional Components and Accessories


Video monitor
CCZ-A cable
BVW-50/50P Betacam SP VTR
EC-0.5C2/0.3C2 Microphone Cable
ECM-670/672 and C-74 Microphone
CCZQ-A cable
VO-8800/8800P U-matic VCR
CAC-12 Microphone Holder
CCZJ-A cable
VHS VCR
DXF-51/51CE 5-inch Viewfinder
CCZ-A cable
VA-5/5P + BVV-5/5PS
Shoulder strap
CCZ-A cable
VA-5/5P + DNV-5/5P
DVCAM mini size cassette tape
DVCAM standard size cassette tape
DSR-300/300P
CCA-7 cable
DC-L1 Battery Adaptor
NP-1B Battery Pack
BC-1WD/1WDCE Battery Charger
RM-M7G Remote Control Unit
RM-LG1 Remote Control Unit
DC-L90 Battery Adaptor
BP-90A Battery Pack
BC-410/410CE Battery Charger
VCT-U14 Tripod Adaptor
Tripod
BP-L40/L60/L60A/L90/L90A Battery Pack
BC-L50 Battery Charger
BC-L100/L100CE Battery Charger
LC-300SFT Soft Carrying Case
LC-421 Carrying Case
CMA-8A/8ACE or AC-550/550CE AC Adaptor
AC-DN1 AC Adaptor
LCR-1 Raincover
WRR-855A UHF Synthesized Tuner
CA-WR855 Camera Adaptor

Glossary

Aliasing
Distortion of the signal caused by overlap of the baseband signal and lower sideband signal when the signal is demodulated.

Aperture compensation
Electronic compensation for frequency response degradations caused to sampled high-frequency signals by the limited aperture of CCD image sensors.

Black balance adjustment
To balance the black levels of the R, G, and B channels of a video camera so that black has no color.

CCD
Charge-coupled device. A solid state imager used in most recent video cameras in place of a pickup tube. It converts input light levels into electrical charges, which are once stored and then output in the form of voltage variations.

Center marker
A cross that indicates the center of the image on the viewfinder screen.

Color conversion filter
An optical filter used with color video cameras to convert the color temperature of a light source.

Color temperature
The temperature in Kelvins (K) to represent the color of a light source.

Composite video signal
A composite video signal includes a video signal, burst signal, and sync signal.

Condensation
Condensation refers to tiny droplets of water that can appear in a device, such as in the tape transport system. When condensation occurs on a video head drum, the tape may stick to the drum, which can damage not only the tape but also the VCR unit.

DCC
Dynamic Contrast Control. A video camera containing a DCC circuit can handle a wide dynamic range of luminance.

Drum
See “Head drum”.

Flare
Dark or colored flashes caused by signal overload through extreme light reflections of polished objects or very bright lights.

Flicker
Repeated change of brightness on the screen, which is caused by frequency difference between the camera’s scanning and the variations in the lightning.

Gen-lock
Abbreviation of “generator lock”. It refers to the synchronization of a VCR to a reference sync signal.

HAD
Hole-Accumulated Diode. A CCD sensor structure designed to suppress certain types of noise inherent CCDs. See also CCD.

Head drum
A metal cylinder to which a video head is attached. This drum is rotated at high speeds in synchronization with the sync signal during recording and playback.

Horizontal resolution
The capability of a CCD camera to preserve detail in the horizontal resolution.
Usually expressed as the number of vertical lines which can be distinguished in the reproduced image of a test chart.

IRE scale
The scale to determine video signal amplitudes devised by the Institute of Radio Engineers (IRE), an American organization now called the Institute of Electrical and Electronic Engineers (IEEE). The IRE scale includes a total of 140 units, with 100 up and 40 down from zero.

PCM audio
PCM stands for “pulse code modulation.” PCM audio means audio signals that have been processed by pulse code modulation. Each analog audio signal is converted into pulses that are generated in rapid succession, and each pulse is recorded as a digital signal having a value of 0 or 1.

Pedestal level
A black level which is the absolute black level of a video signal.

Return video
This refers to a video signal returned from the VCR to the camera or from the CCU to one camera in a multi-camera system, allowing the camera operator to monitor the image output from the camera or shot on other cameras.

S/N
Signal-to-Noise ratio. The relation of the strength of the desired signal to the accompanying electronic interference, the noise. If S/N is high, sounds are reproduced with less noise and pictures are reproduced clearly without snow.

Search
The search function enables recorded images or time codes to be viewed while the tape is played back at various forward or reverse speeds, as a means of locating a particular scene in the taped program.

Standby-off mode
One of the stop modes. In this mode, head drum rotation is stopped and the tape tension is slackened. It is not possible to switch instantaneously from this mode to recording or playback mode. This mode is not harmful to the tape or heads.

Standby-on mode
One of the stop modes. In this mode, the head drum continues rotating and the tape remains wound onto the drum. This mode enables instantaneous switching to recording or playback mode. To prevent damage to the tape or heads, the device automatically switches from standby-on mode to standby-off mode after a certain period of time.

S video connectors
Input/output connectors for separate Y (luminance) and C (chroma) signals. This method eliminates interference between Y and C signals that can occur in conventional composite video signals to obtain a higher-resolution picture.

Sync
This refers to the sync (synchronization) signal. The sync signal is used as a reference signal for duplicating the scanning patterns recorded via a camera when playing back the recording on a monitor. The sync signal actually includes two signals: a horizontal sync signal and a vertical sync signal.

Time code
The time code is a tape position information signal that includes time and frame data that are recorded onto the tape when shooting so as to facilitate searching of editing points and recorded scenes when viewing or editing.

User bits
These are also referred to as "users' bits". The user bits are a 32-bit segment of the time code recording area. The user can select what to record in this segment and how to use the recorded data. For example, it can be used to record date information in addition to the time code data or ID numbers for tape reels or programs.

Video gain
Amount of amplification for video signals, expressed in decibels (dB).

White balance adjustment
In the light of a particular color temperature, to adjust the white levels of the R, G, and B channels of a color video camera so that any white object shot in that light is reproduced as a truly white image.

Zebra pattern
Striped patterns which appear in the viewfinder to indicate areas of the image where the video level is about 70 IRE (NTSC) or 70% (PAL). The DSR-300/300P can show areas where the video level is 100 IRE (NTSC) or 100% (PAL).

Sony Corporation Printed in Japan

SONY

3-861-954-**01** (1)

Index Picture Board

Operating Instructions **Page 5** EN

DVCAM™

DSBK-301

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Overview

The DSBK-301 Index Picture Board is an optional board for the DSR-300/300P DVCAM Camcorder. When fitted in the DSR-300/300P, it allows the recording of index pictures used for scene searching.

For information about how to record index pictures, refer to the Operating Instructions for the DSR-300/300P.

In addition to these Operating Instructions, three fixing screws (PWH 1.4 × 3.5) are also provided with the DSBK-301.

Caution

If this optional board is installed incorrectly, personal injury or damage to peripheral items may occur due to fire, shock, or other accidental circumstances. To avoid such risks, installation should be performed by qualified service personnel.

Fitting Procedure

To fit this board in the DSR-300/300P, use the following procedure.

Note

Before removing and replacing the lithium battery used in the DSR-300/300P, be sure to carefully read the instructions provided with the battery. **Lithium batteries may explode if misused.**

1 Set the POWER switch of the xzDSR-300/300P to ON and take out the lithium battery.

For information about how to take out the lithium battery, refer to the Operating Instructions for the DSR-300/300P.

2 Set the POWER switch of the DSR-300/300P to OFF and disconnect all power supplies from the DSR-300/300P.
- If a battery pack is loaded, remove it.
- If a DC power cord is connected to the DC IN connector, disconnect it.

For information about how to disconnect power supplies from the DSR-300/300P, refer to the Operating Instructions for the DSR-300/300P.

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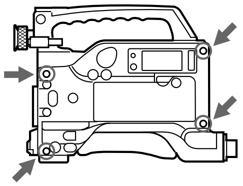
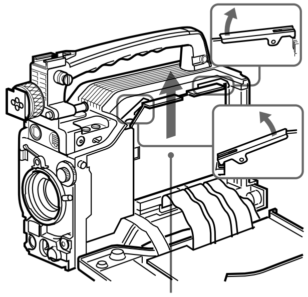
Fitting Procedure

3 Loosen the four screws on the right-hand side panel of the DSR-300/300P and remove the panel.

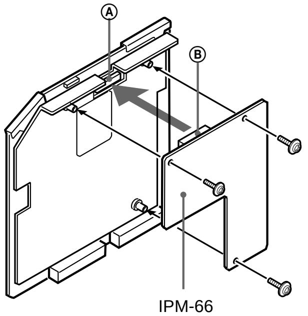


4 Raise the two levers on both sides of the top edge of the DPR-99 board and pull out the board.

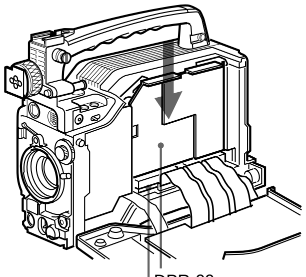


5 Engage connectors Ⓐ and Ⓑ, and fix this board (IPM-66) to the DPR-99 board using the three supplied screws.

Torque to be applied to the screws
0.1 ±0.01 N · m (1 ±0.1 kgf · cm)



6 With the two levers on the DPR-99 board returned to their normal positions, insert the DPR-99 board along the board guides until the board is firmly connected to the connector at the bottom.



7 Replace the right-hand side panel of the DSR-300/300P.

8 Set the POWER switch of the DSR-300/300P to ON and replace the lithium battery removed in step **1**.

For information about how to replace the lithium battery, refer to the Operating Instructions for the DSR-300/300P.

Note

When the above procedure is performed, the clock and calendar of the DSR-300/300P is reset to the factory-set state. Use VTR menu 101 of the DSR-300/300P to set the clock and calendar again.

For more information about setting the clock and calendar, refer to the Operating Instructions for the DSR-300/300P.

To remove this board from the DSR-300/300P
Follow the fitting procedure in reverse.

SONY

3-862-339-**01**(1)

Camera Adaptor
CA-WR855

Bedienungsanleitung
Istruzioni per l'uso

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any chan ges or modifications not expressly approved in this manual could void your authority to operate this equipment.

For customers in Canada
This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Pour les utilisateurs au Canada
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Für Kunden in Deutschland
Dieses Produkt kann im kommerziellen und in begrenztem Maße auch im industriellen Bereich eingesetzt werden. Dies ist eine Einrichtung, welche die Funk-Entstörung nach Klasse B besitzt.

Overview

The CA-WR855 is a camera adaptor for mounting the WRR-855 UHF Synthesized Tuner on a DSR-300/300P Digital Camcorder. For details of how to use this for mounting the WRR-855 on a DSR-300/300P, refer to the instructions supplied with the DSR-300/300P.

Specifications

Input voltage	DC 10 to 17V (12V normal)
Output voltage	DC 7V
Load current	200 mA DC or less (at DC 7V)
Operating temperature	–10°C to +45°C (14°F to 113°F)
Storage Temperature	–20°C to +60°C (–4°F to +140°F)
Dimensions	90 × 132 × 36 mm (3 $^{1}/_{2}$ × 5 $^{1}/_{4}$ × 1 $^{7}/_{16}$ inches) (w/h/d, excluding projections)
Mass	Approx. 300g (10 oz)
Supplied accessories	Operating instructions (1)

Design and specifications are subject to change without notice.

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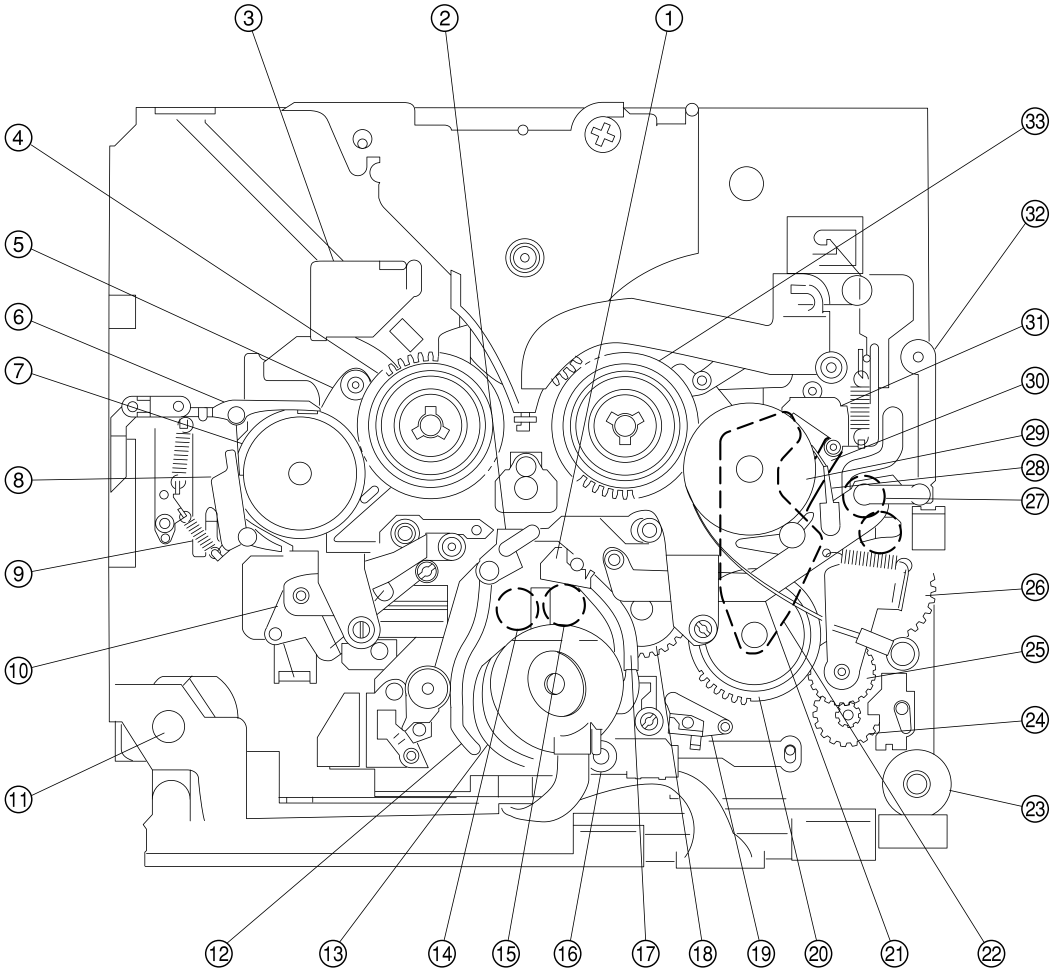
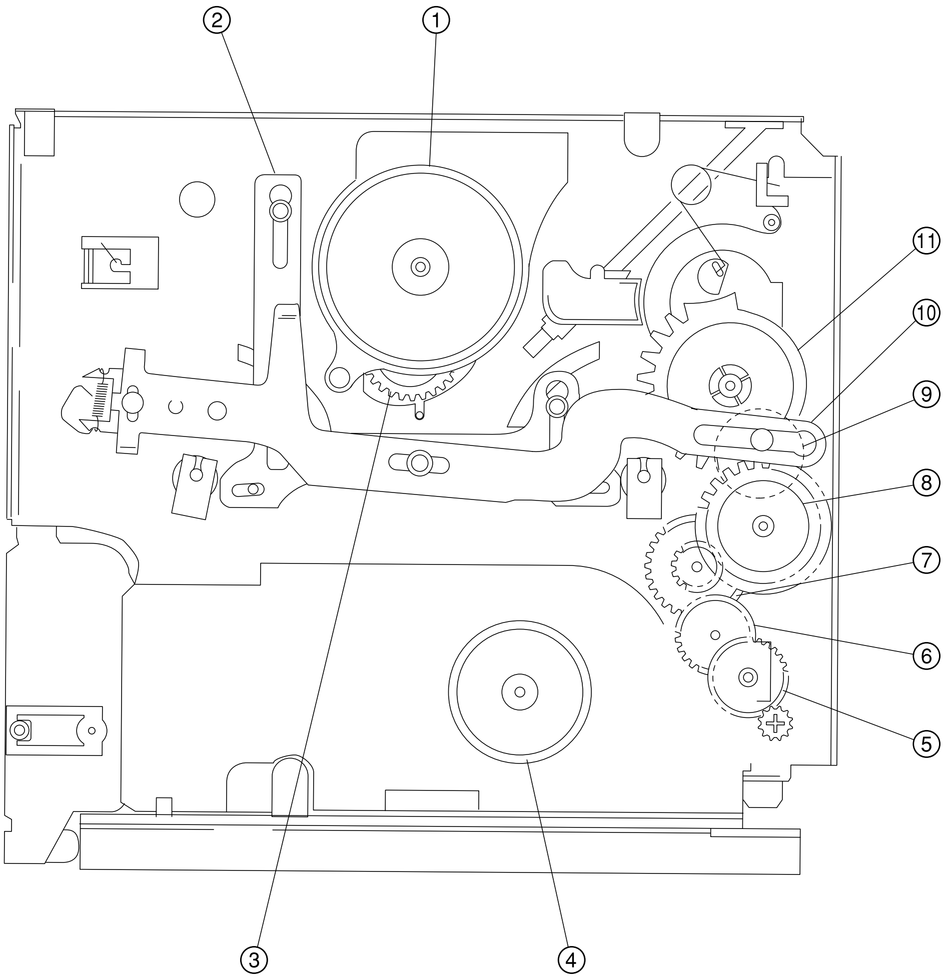
SECTION 2
SERVICE INFORMATION

2-1. LOCATION OF MAJOR PARTS

2-1-1. Location of Major Mechanical Parts



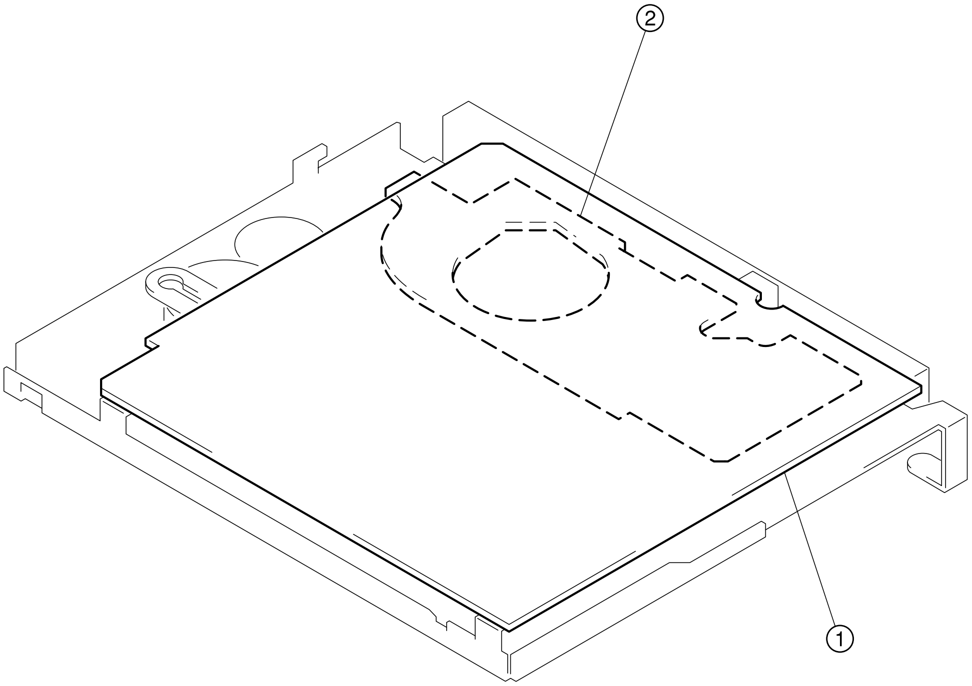
① Coaster (S)
② Coaster (T)
③ MIC
④ Reel table (T)
⑤ Reel plate (T)
⑥ TL soft brake
⑦ Sub reel gear (T)
⑧ Soft brake arm (T)
⑨ Hard brake arm (T)
⑩ Pinch arm
⑪ Shift motor
⑫ Rail (T)
⑬ Drum
⑭ GL (T)
⑮ GL (S)
⑯ C roller
⑰ Rail (S)
⑱ Threading gear
⑲ TC assembly
⑳ Cam gear
㉑ TR arm
㉒ Reel plate (S)
㉓ LD motor
㉔ No. 1 gear
㉕ HC gear
㉖ Mode gear
㉗ Release cam gear
㉘ TR band
㉙ Sub reel gear (S)
㉚ Hard brake arm (S)
㉛ Soft brake arm (S)
㉜ Sensor bracket
㉝ Reel table (S)



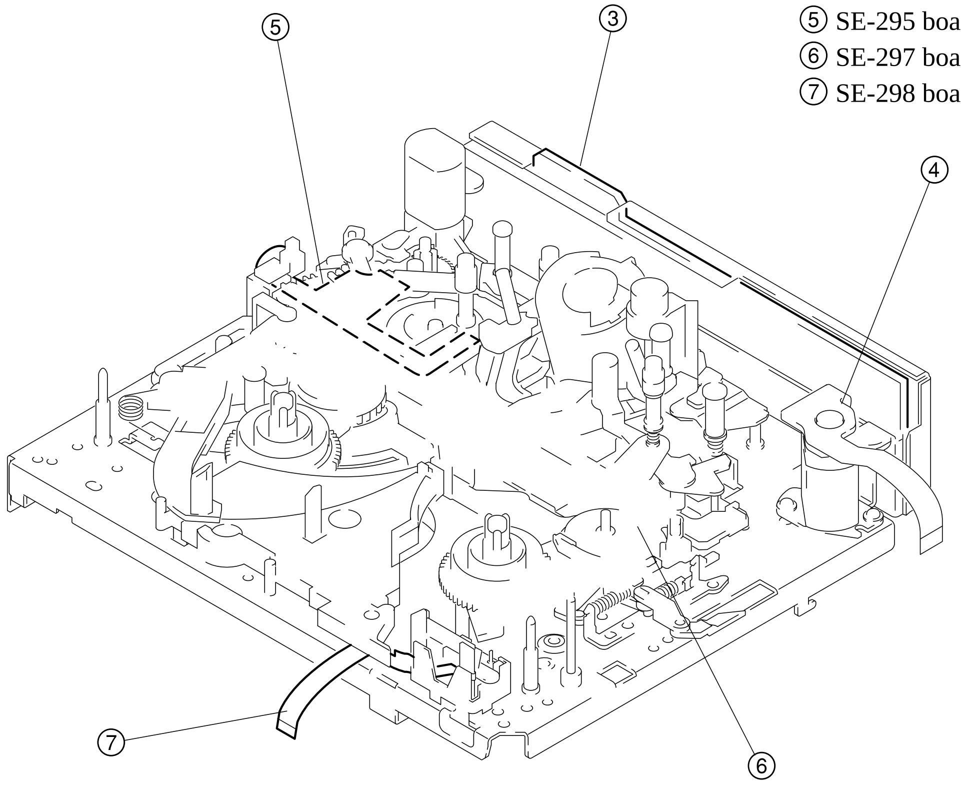
① Reel motor	⑦ Gear C
② Reel plate compression link	⑧ Reel drive gear A
③ Idler gear	⑨ Gear E
④ Capstan motor	⑩ Reel drive arm
⑤ Gear A	⑪ Reel drive gear B
⑥ Gear B	

2-1-2. Location of the Boards

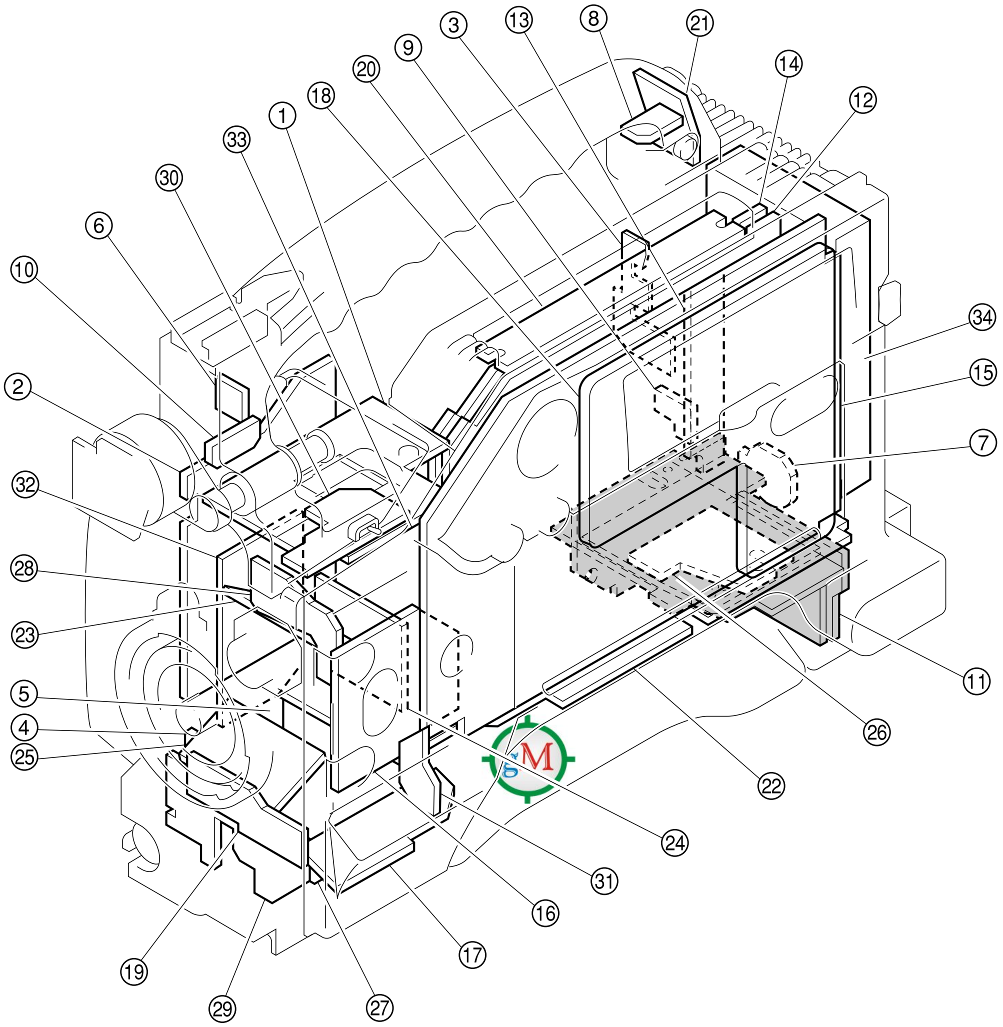
• Mechanical Deck



① SV-164 board
② HN-227 board
③ RP-91 board
④ MT-114 board
⑤ SE-295 board
⑥ SE-297 board
⑦ SE-298 board

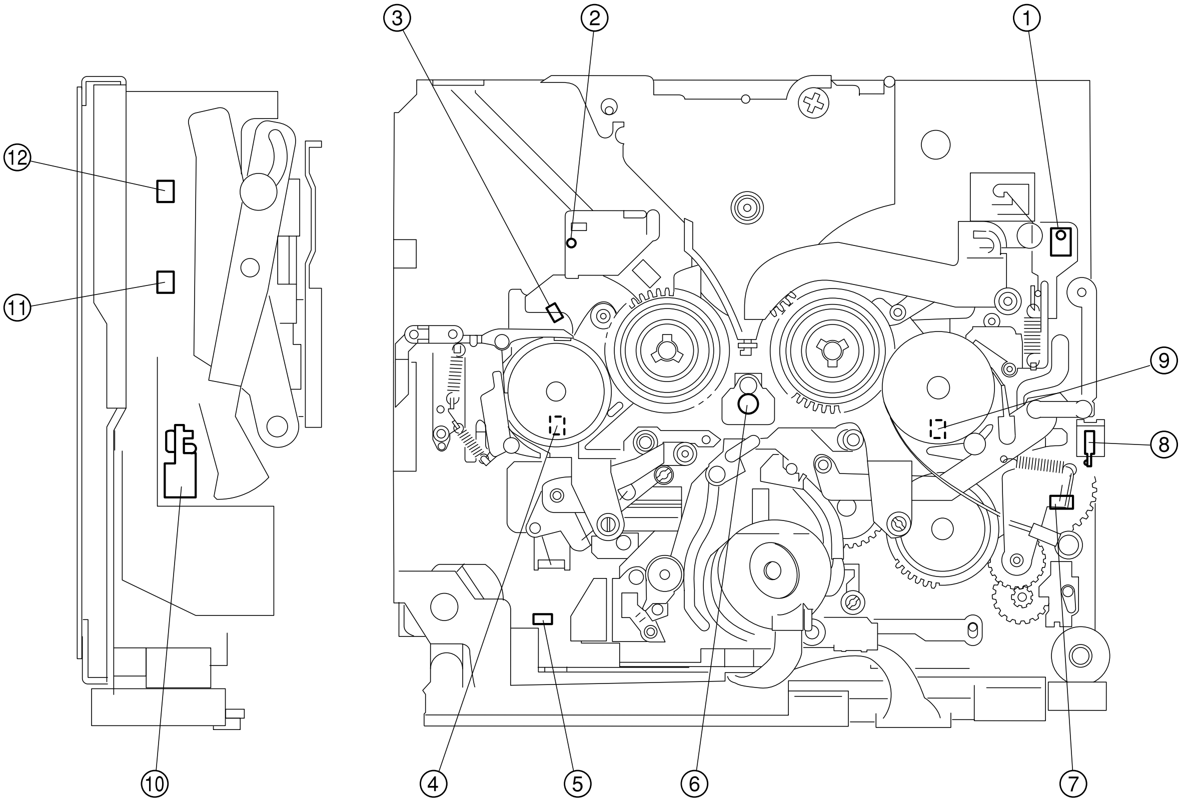


- **Main Chassis**



① AA-92 board
② AT-117 board
③ CC-68 board
④ CN-1433 board
⑤ CN-1444 board
⑥ CN-1518 board
⑦ CN-1519 board
⑧ CN-1549 board
⑨ CN-1693 board
⑩ CN-1695 board
⑪ CP-315 board
⑫ DPR-99/99P board
⑬ DU-27 board
⑭ ES-21/21P board
⑮ FP-98 board
⑯ FP-99 board
⑰ GCN-15 board
⑱ IPM-66 board (DSBK-301)
⑲ IR-28 board
⑳ KY-405 board
㉑ LE-188 board
㉒ MB-753 board
㉓ PA-205 board
㉔ PA-206 board
㉕ PA-207 board
㉖ PS-495 board
㉗ PSW-56 board
㉘ SE-372 board
㉙ SW-888 board
㉚ SW-923 board
㉛ SW-929 board
㉜ TG-187/187P board
㉝ VA-178 board
㉞ DC-DC converter

2-1-3. Location of Sensors



Function of the Sensors

① Cassette compartment lock switch
Detects that the cassette compartment has locked.
Starts threading when the cassette compartment locks from the open state.
During EJECT, EJECT operations end when the cassette compartment opens from the locked state.

② False REC detection sensor
Detects the setting position of mis-record-prevention switch of the cassette tape.

③ Reel position sensor
Detects the reel position, such as standard cassette position or mini-cassette position.

④ Take-up reel FG sensor
Detects the rotation speed of the take-up reel.

⑤ Dew sensor
Detects dew condensation in the unit.

⑥ Tape top end sensor (LED)

⑦ Mechanical function cam sensor (Cam position sensor)
Detects the movement of the cam whether it is moved to the specified position.

⑧ Tape end sensor (sensor)

⑨ Supply reel FG sensor
Detects the rotation speed of the supply reel.

⑩ Tape top sensor (sensor)

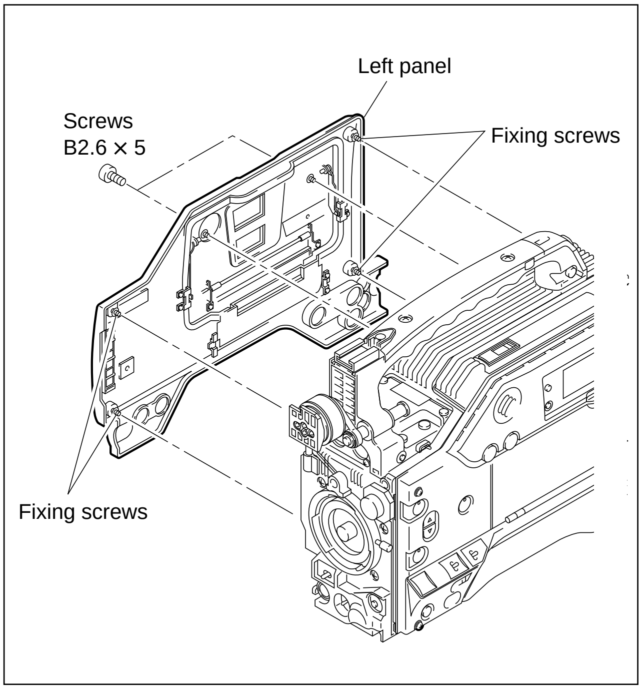
⑪ Cassette-In switch
Detects whether a cassette tape is inserted in the cassette compartment.

⑫ Cassette identification switch
Detects the size of a cassette tape in the cassette compartment.

2-2. REMOVING AND ATTACHING THE CABINET

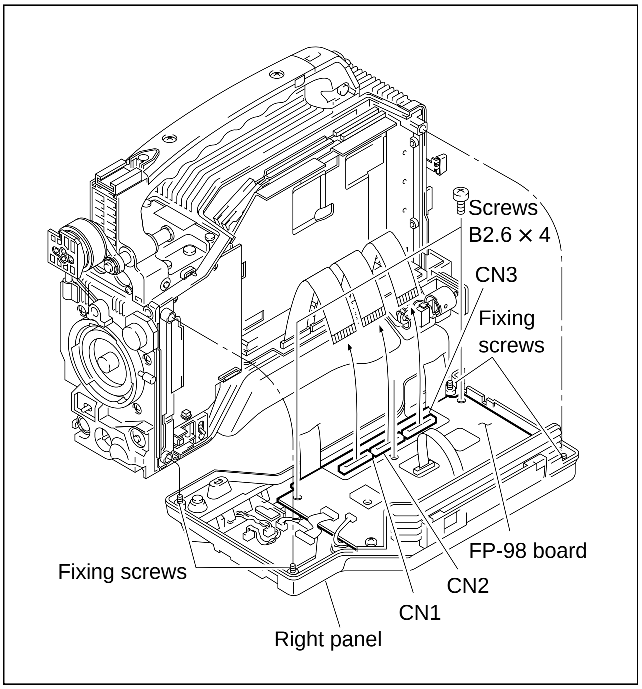
2-2-1. Left Panel and Cassette Compartment Lid

1. Remove the two screws (B2.6 × 5) from the cassette compartment lid.
2. Loosen the four fixing screws and remove the left panel and cassette compartment lid.


Left panel
Screws
B2.6 × 5
Fixing screws
Fixing screws

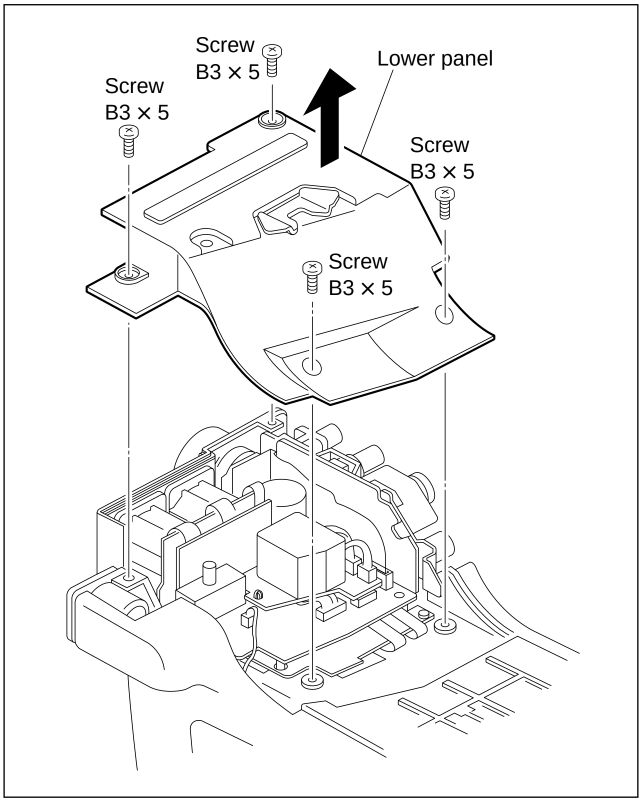
2-2-2. Right Panel

1. Loosen the four screws and open the right panel.
2. Disconnect the three flat cables (CN1, CN2 and CN3) from the FP-98 board.
3. Remove the two screws (B2.6 × 4) and remove the right panel (leave the FP-98 board attached).


Screws
B2.6 × 4
CN3
Fixing
screws
FP-98 board
Fixing screws
CN2
CN1
Right panel

2-2-3. Lower Panel

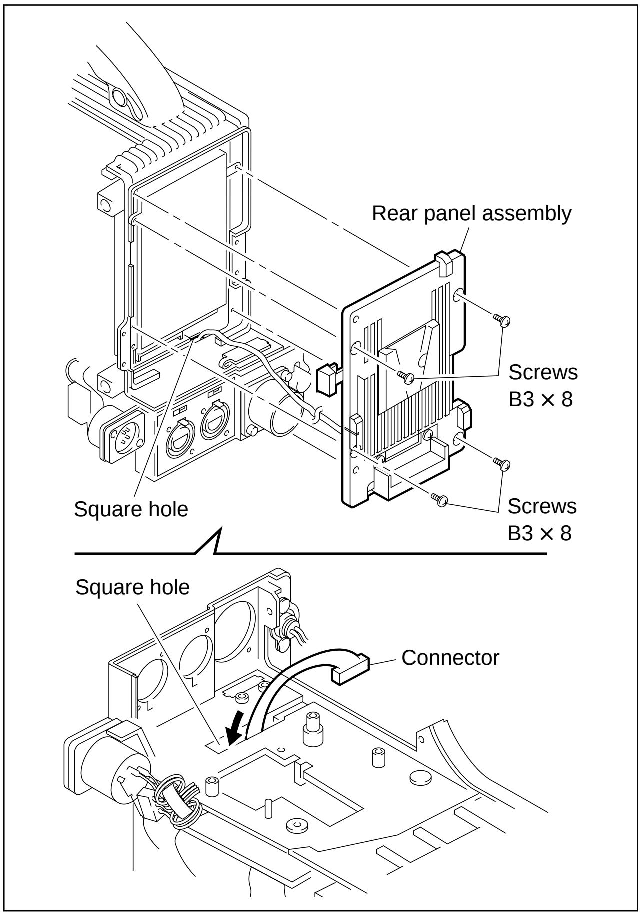
1. Remove the four screws (B3 × 5) and remove the lower panel.


Screw
B3 × 5
Lower panel
Screw
B3 × 5
Screw
B3 × 5
Screw
B3 × 5

2-2-4. Rear Panel Assembly

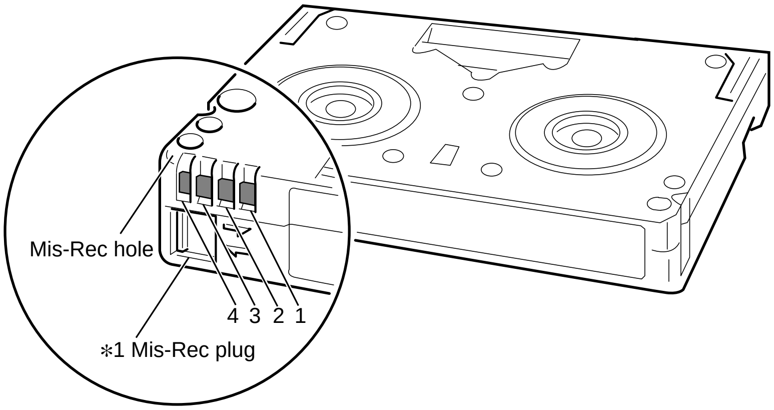
1. Remove the PS-495, CN-1519 and CP-315 boards. (Refer to sections 2-11-11, 2-11-12, and 2-11-13.)
2. Remove the four screws (B3 × 8) and remove the rear panel assembly.

Point to notice when attaching the rear panel assembly:
Be sure to thread the harness through the square hole of the frame assembly.

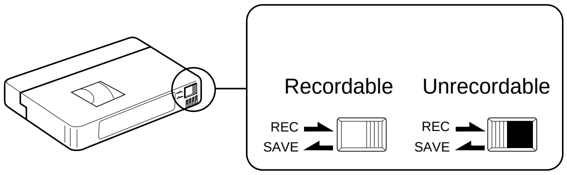

Rear panel assembly
Screws
B3 × 8
Screws
B3 × 8
Square hole
Square hole
Connector

2-3. FUNCTIONS OF CASSETTE

Standard Cassette

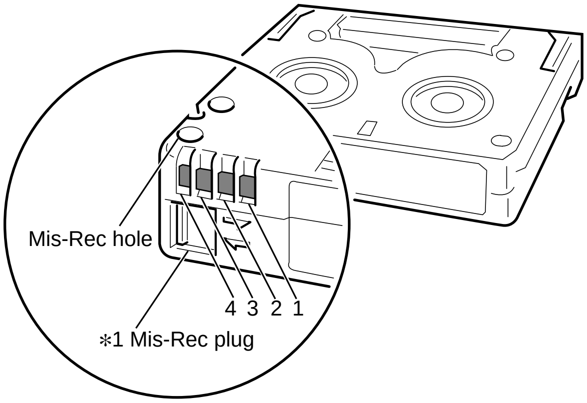

Mis-Rec hole
4 3 2 1
∗1 Mis-Rec plug

∗1 Mis-Rec plug


Recordable
Unrecordable
REC
SAVE
REC
SAVE

- Mis-Rec switch is operated by opening or closing of this plug.

Mini Cassette


Mis-Rec hole
4 3 2 1
∗1 Mis-Rec plug

Pin No.	**Function**	
	Built-in memory	**No Built-in memory**
1	+DC	Tape thickness detection
2	DATA	Tape type detection (Ex.: ME/MP)
3	CLOCK	Tape usage detection (Ex.: Consumer/Professional)
4	GND	—

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2-4. CIRCUIT STRUCTURE

The DSR-300/P is composed of the following boards.

System	Board name	Circuit structure
VIDEO	IPM-66 (DSBK-301)	INDEX PICTURE
AUDIO/VIDEO	AA-92	MIC AMP, VF CONNECTOR
	DPR-99/99P	CAMERA/VIDEO DIGITAL PROCESS
	ES-21/21P	CAMERA/VIDEO ENCODER
	PA-205	CAMERA PREAMP
	PA-206	CAMERA PREAMP
	PA-207	CAMERA PREAMP
	RP-91	REC/PB RF AMP, CHCD (CHANNEL CODING)
	VA-178	CAMERA AGC, WB AMP
	TG-187/187P	CAMERA TIMING GENERATOR
SERVO	CC-68	CASSETTE COMPARTMENT SWITCH, TAPE TOP SENSOR
	HN-227	SERVO MECHANISM DECK INTERFACE
	MT-114	REEL SHIFT MOTOR/SWITCH
	SE-295	FUNCTION CAM SENSOR, TAPE END SENSOR
	SE-297	REEL FG SENSOR, REEL SHIFT SENSOR, CASSETTE COMPARTMENT LOCK SWITCH
	SE-298	MIC, REC INHIBIT SWITCH
	SV-164	SERVO
SYSCON	AT-117	CAMERA MICOM.
	FP-98	RIGHT PANEL SWITCH, VIDEO MICOM., ANALOG AUDIO, LCD
CONNECTOR	CN-1433	2/3 LENS CONNECTOR
	CN-1444	RM CONNECTOR
	CN-1518	RM JACK
	CN-1519	CCZ FLEXIBLE CARD
	CN-1549	EARPHONE JACK
	CN-1693	+12 V DC CONNECTOR
	CN-1695	ANTON CONNECTOR
	CP-315	REAR CONNECTOR BOX
	IR-28	1/2 LENS CONNECTOR
SWITCH	FP-99	RIGHT PANEL SWITCH
	GCN-15	GAIN SWITCH
	KY-405	VIDEO CONTROL SWITCH
	PWS-56	AWB/ABB SWITCH, POWER SWITCH
	SW-888	SHUTTER SWITCH
	SW-923	EDIT SEARCH SWITCH
	SW-929	ROTARY SWITCH
OTHERS	DU-27	MECHANICAL BACK-UP
	LE-188	BACK TALLY LED
	MB-753	CAMERA/VIDEO MOTHER BOARD
	PS-495	VIDEO LIGHT, DC-DC CONVERTER
	SE-372	FILTER DISC DETECTOR

2-5. NOTES ON TIGHTENING SCREWS

1. Attaching Screw to the Chassis

This unit has a small and light design, and uses numerous M1.4 × 2.5 (1.4 mm diameter), M2 × 5, and M2 × 6 (2 mm diameter) screws.
When tightening the above screws, be very careful of the tightening torque. In order to prevent the chassis's screw-hole from damage against the excessive tightening torques, be sure to use the following torque screwdriver and torque screwdriver bits.

Tools	Sony Part No.
Torque screwdriver	J-6325-400-A
Torque screwdriver bit (For M1.4)	J-6325-110-A
Torque screwdriver bit (For M2)	J-6325-380-A

Screws	Tightening torque
For M1.4 screws	0.09 ± 0.01 N•m (0.9 ± 0.1 kgf•cm)
For M2 screws	0.19 ± 0.03 N•m (1.9 ± 0.3 kgf•cm)

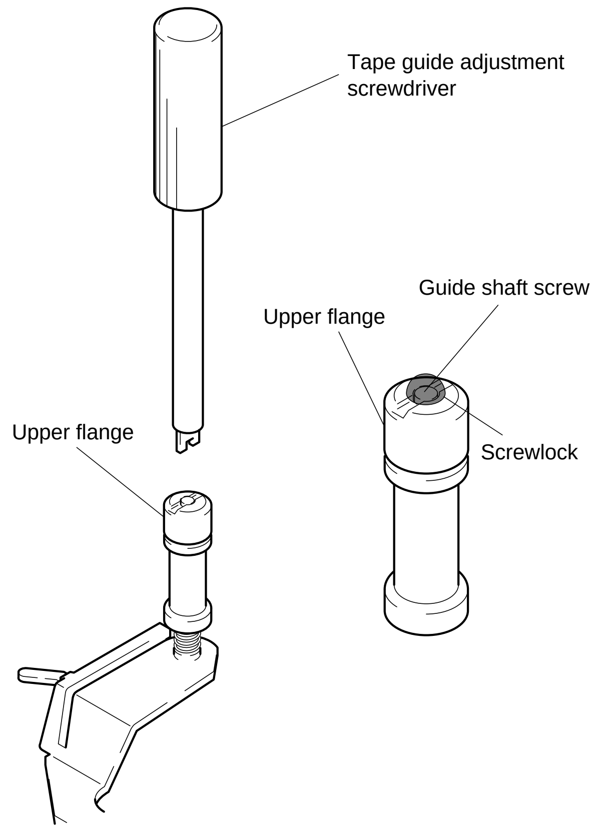
The above torque screwdrivers can be used for both M1.4 and M2 screws.

2. Screwlocking of Tape Guide's Upper Flange

When performing the tape guide height adjustment during tape path adjustment, use the following tape guide adjustment screwdriver.
After adjusting the tape guide height, apply screwlocking compound to the upper flange of tape guide and tapped section of guide shaft screw.

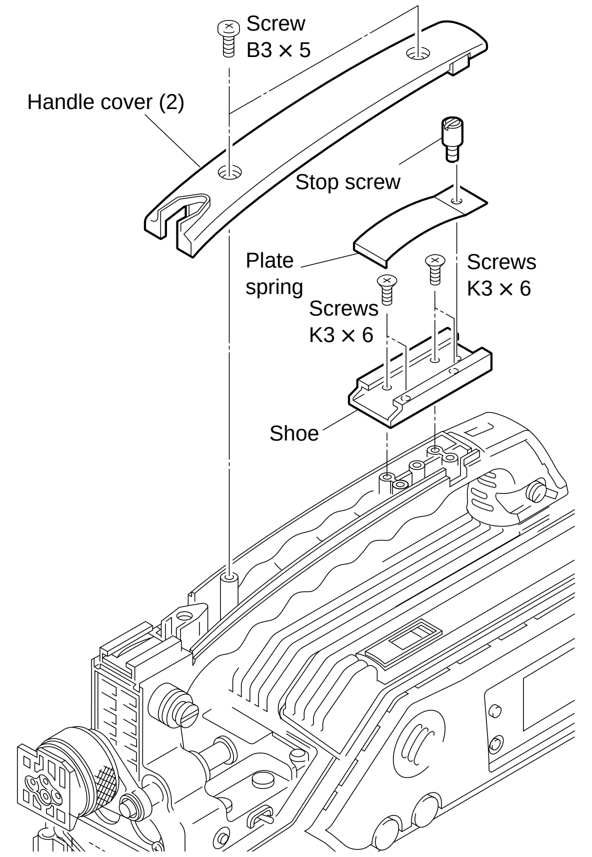
Tools	Sony Part No.
Tape guide adjustment screwdriver	J-6082-362-A
Screwlocking compound (Three-bond 1401B)	7-432-114-11

Point to notice when applying the screwlocking compound:
Do not apply screwlocking compound to the guides along the tape running surface.



2-6. ATTACHING THE 4" OR 5" VIEWFINDER

An optional 4-inch viewfinder (DXF-40 series) or 5-inch viewfinder (DXF-50 series) can be attached in accordance with the following procedures:

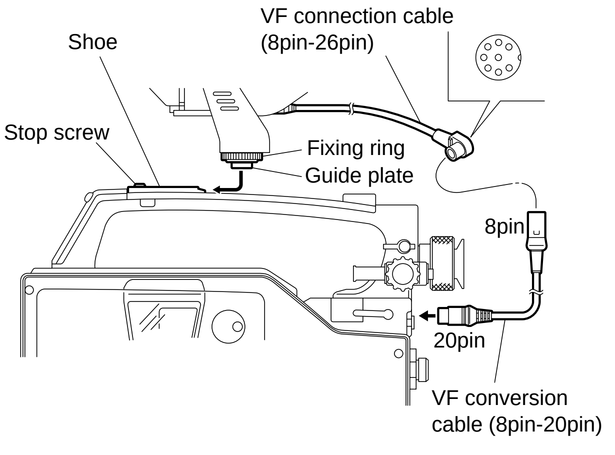

Screw
B3 × 5
Handle cover (2)
Stop screw
Plate spring
Screws
K3 × 6
Screws
K3 × 6
Shoe

Parts Required (sold separately)

Name	Sony Part No.
• Accessory shoe kit	A-8274-968-A
Shoe	3-664-218-00
Plate spring	3-664-228-00
Stop screw	3-664-213-00
Screw K3 × 6 (4 pcs)	3-664-218-00
• Conversion cable (8pin-20pin)	1-783-665-11
∗ No conversion cable is required for DXF-51.	

Attaching Procedure

1. Remove the two screws (B3 × 5) and remove the handle cover (2).
2. Tighten the shoe with four screws (K3 × 6).
3. Fix the plate spring with stop screw.


Shoe
VF connection cable
(8pin-26pin)
Stop screw
Fixing ring
Guide plate
8pin
20pin
VF conversion
cable (8pin-20pin)

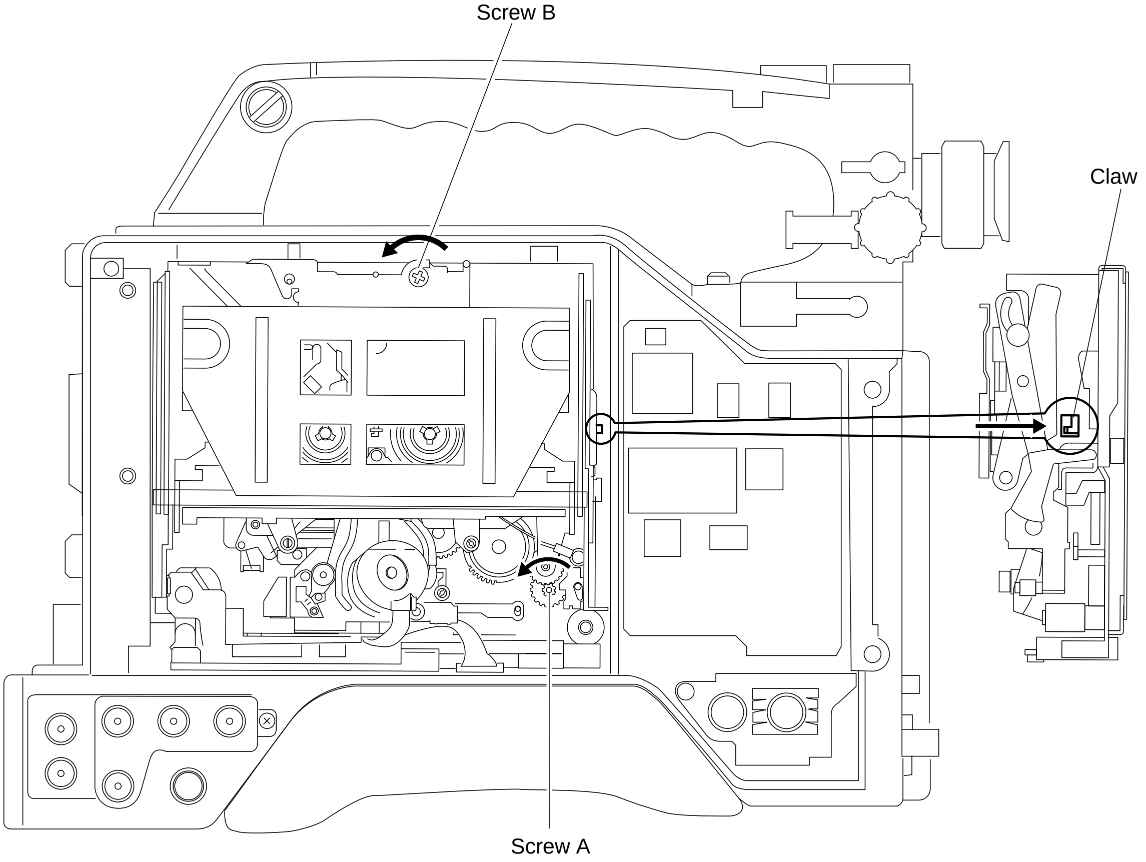
4. Fit the guide plate in the shoe and tighten the fixing ring.
5. Connect the conversion cable.

2-7. EXTRACTING THE CASSETTE TAPE WHEN TAPE SLACKS

1. Remove the left panel. (Refer to section 2-2-1.)
2. While holding the cassette compartment so that it does not rise, turn screw A (red) in the counterclockwise direction with a phillips screwdriver until the tape slacks slightly.
3. Turn screw B (red) in the counterclockwise direction with a phillips screwdriver, and wind the tape slacked in step 2.
4. Repeat steps 2 and 3 until the tape has been completely wound.
5. After winding the tape, remove your hand from the cassette compartment, and turn screw A further in the counterclockwise direction so that the cassette compartment rises, then extract the tape. If the cassette compartment does not rise, press the claws on the side of the cassette compartment with a thin screwdriver.

Point to notice when winding the tape:

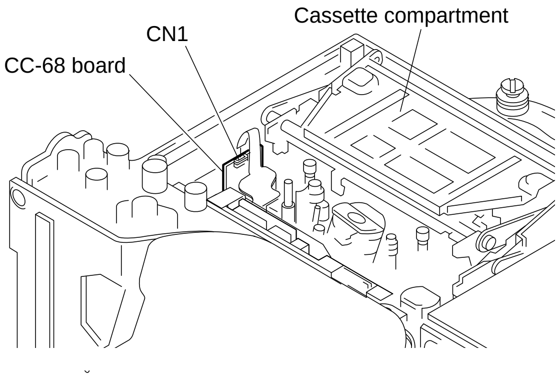
1. Do not turn the screws A and B strongly.
2. Do not apply excessive tension to the tape.



2-8. OPERATING THE UNIT WITHOUT LOADING A CASSETTE TAPE

1. Turn off the power switch.
2. Remove the left panel and cassette compartment lid. (Refer to section 2-2-1.)
3. Disconnect connector CN1 from the CC-68 board.
4. Set the SLACK DETECTION ON/OFF switch (S500-4/SV-164 board) to off.
5. Turn on the power switch.
6. Press the desired mode button.

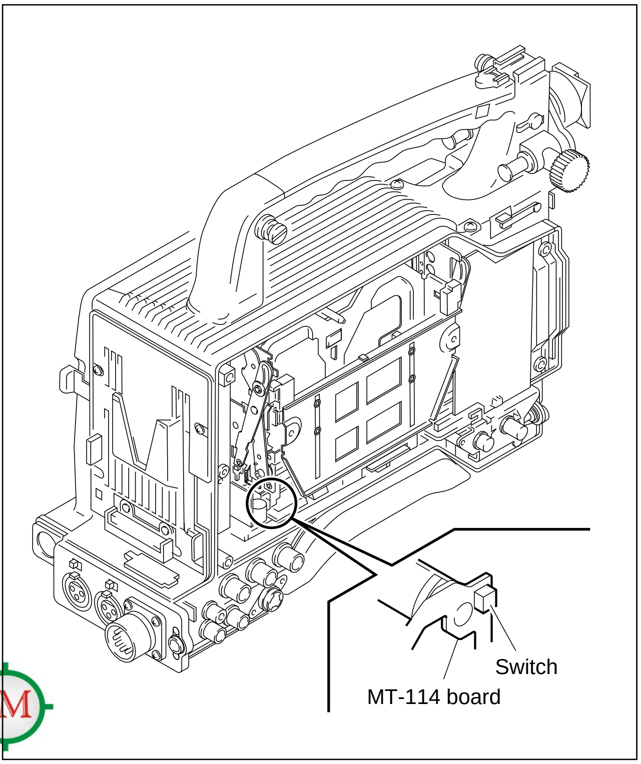
Note: Set the SLACK DETECTION ON/OFF switch (S500-4/SV-164 board) to on, after operation.



2-9. SHIFTING THE REEL

2-9-1. When the power can be turned ON

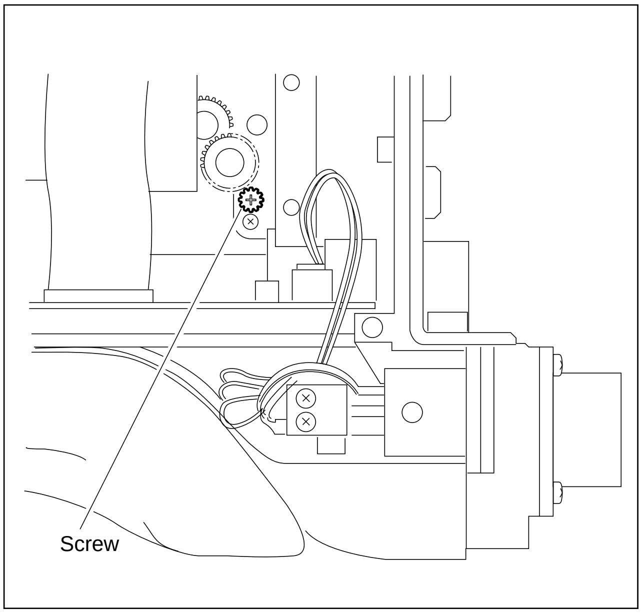
1. Turn off the power switch.
2. Remove the left panel and cassette compartment lid. (Refer to section 2-2-1.)
3. Disconnect the connector CN1 from the CC-68 board.
4. Turn on the power switch.
5. Press the EJECT button to set the unit in EJECT state.
6. Press the switch on the MT-114 board. The reel is shifted alternately between the standard cassette position and mini cassette position by every pressing the switch.



2-9-2. When the power cannot be turned ON

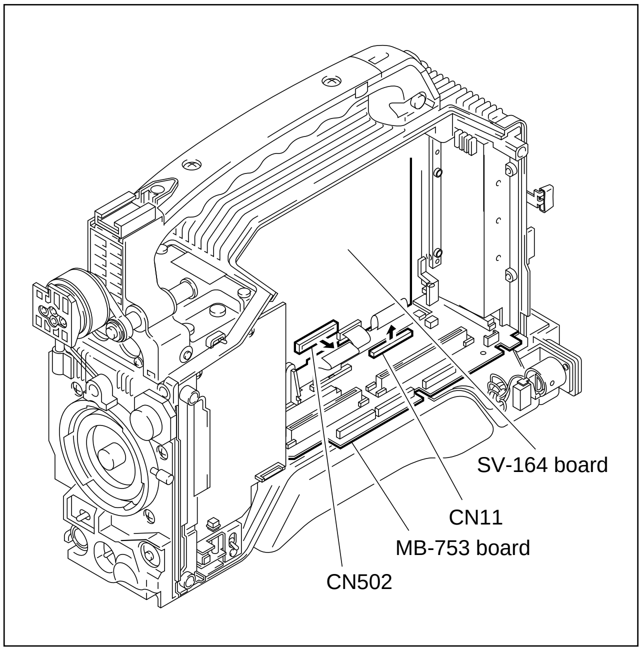
1. Open the right panel. (Refer to section 2-2-2.)
2. Remove the DC-DC converter. (Refer to section 4-35.)
3. Remove the DPR-99/99P and ES-21/21P boards. (Refer to section 2-11-4.)
4. Remove the DU-27 board. (Refer to section 2-11-5.)
5. Turn the screw as shown in the figure.
   Clockwise direction: Standard cassette position
   Counterclockwise direction: Mini cassette position

Note 1: Do not turn the screw with excessive force.
Note 2: Do not use this screw frequently.

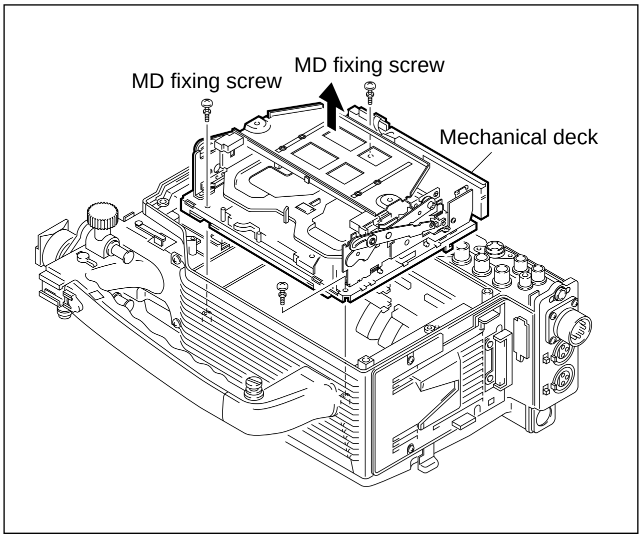


2-10. REMOVAL OF MECHANICAL DECK

1. Open the right panel. (Refer to section 2-2-2.)
2. Remove the ES-21/21P and DPR-99/99P boards. (Refer to section 2-11-4.)
3. Remove the DU-27 board. (Refer to section 2-11-5.)
4. Remove the flat cable CN502 from the SV-164 board and CN11 from the MB-753 board.


SV-164 board
CN11
MB-753 board
CN502

5. Remove the two screws (B2.6 × 4) and open the AT-117 board. (Refer to section 2-11-6.)
6. Remove the left panel and cassette compartment lid. (Refer to section 2-2-1.)
7. Remove the three screws (MD fixing screws) and pull out the mechanical deck in the arrow direction.

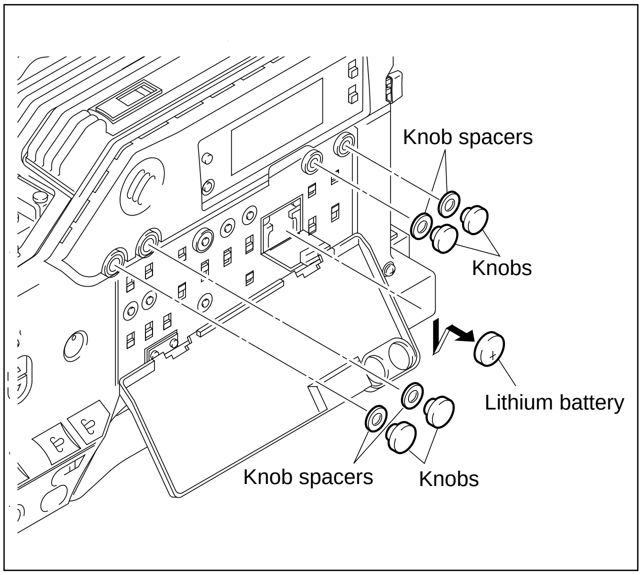

MD fixing screw
MD fixing screw
Mechanical deck

2-11. REMOVAL AND ATTACHING THE BOARDS

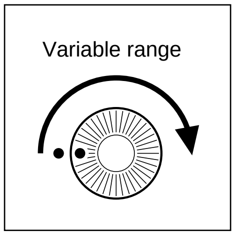
2-11-1. FP-98 Board

Point to notice when removing the FP-98 board:
In order to protect the stored data inside the board, power line of this unit is always activated even if the power switch is turned to off. As the data inside the FP-98 board is backed up by the lithium battery, IC chips on the FP-98 board may damage by the usual service activity. Therefore, be sure to remove the lithium battery inside the TC panel before removing the FP-98 board.

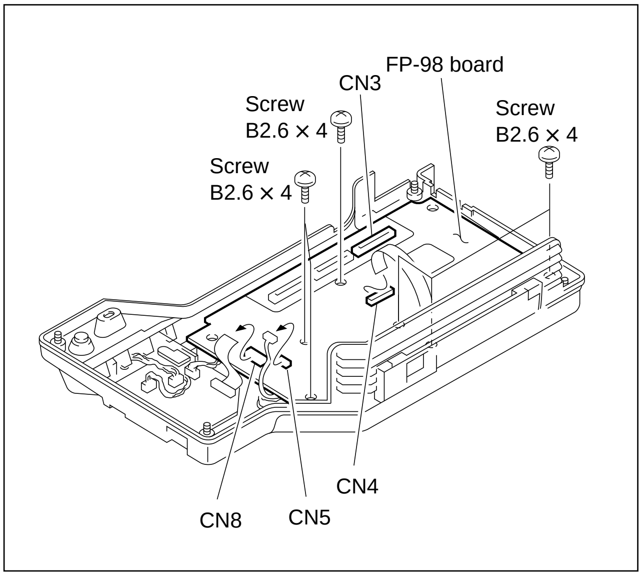
1. Remove the lithium battery from the TC panel.
2. Remove the four knobs and four knob spacers.
3. Remove the right panel. (Refer to section 2-2-2.)



Point to notice when installing the knob spacers:
1. Be sure to put a knob spacer behind the knob.
2. Align the dot mark on the knob with the dot mark on the unit.



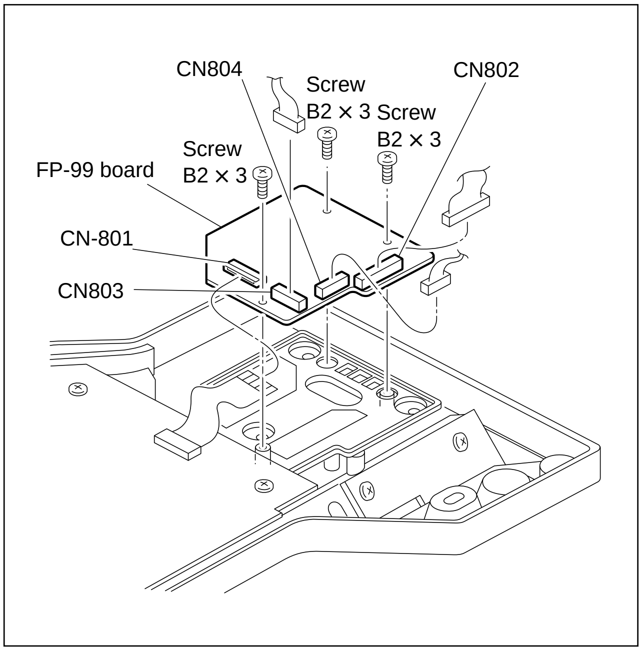
4. Disconnect the two flat cables (CN4 and CN8) and a connector (CN5) from the FP-98 board.
5. Remove the six screws (B2.6 × 4) and remove the FP-98 board.



Point to notice after replacing the FP-98 board:
Be sure to make presetting of the KY EEPROM’s echo-back data. (Refer to section 2-28-4.)
Since maintenance information are stored inside the EEPROM on the FP-98 board, they are stored inside the EEPROM on the DPR-99/99P board as well as an echo-back data. To write the lost data in EEPROM on the FP-98 board after the FP-98 board replacement, carry out the KY EEPROM ECHO BACK DATA PRESET in menu No. 752.

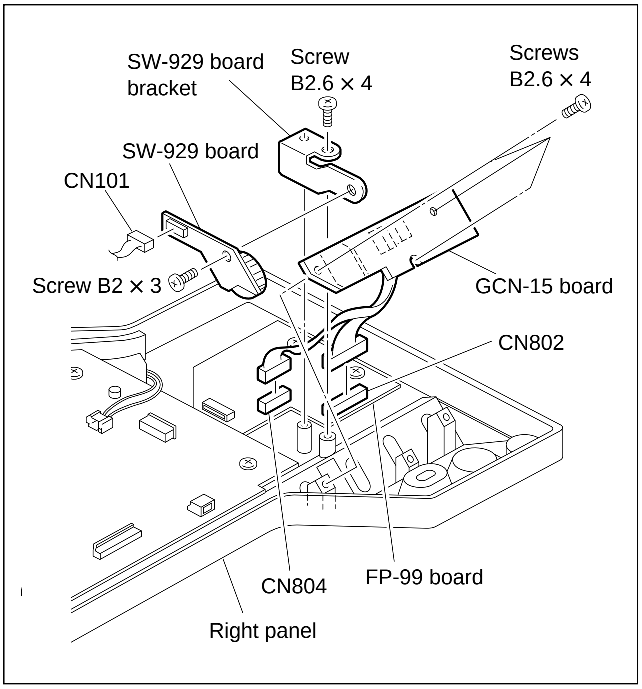
2-11-2. FP-99 Board

1. Open the right panel. (Refer to section 2-2-2.)
2. Disconnect the flat cable (CN801) and the three connectors (CN802, CN803, and CN804) from the FP-99 board.
3. Remove the three screws (B2 × 3) and remove the FP-99 board.


CN804
Screw B2 × 3
CN802
Screw B2 × 3
Screw B2 × 3
FP-99 board
CN-801
CN803

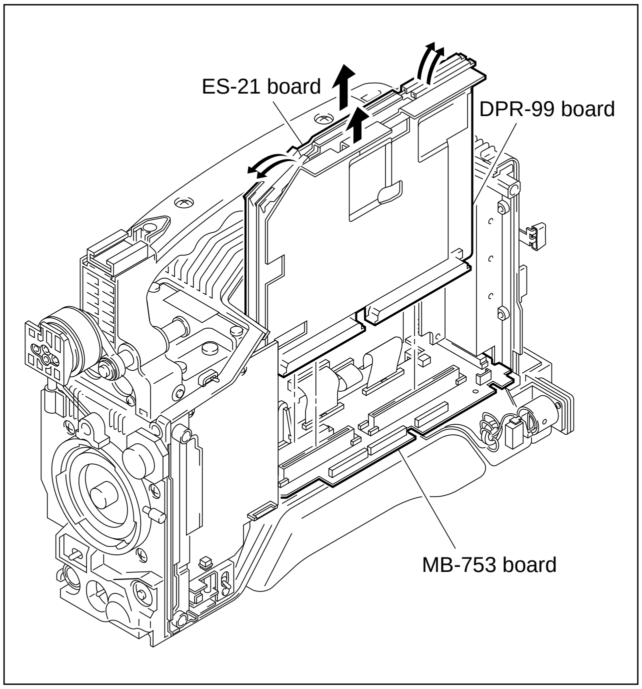
2-11-3. GCN-15 and SW-929 Boards

1. Remove the right panel. (Refer to section 2-2-2.)
2. Disconnect the two connectors (CN802 and CN804) from the FP-99 board.
3. Remove the three screws (B2.6 × 4) and remove the GCN-15 board.
4. Disconnect the a connector (CN101) from the SW-929 board.
5. Remove the screw (B2.6 × 4) and remove the SW-929 board together with bracket.
6. Remove the screw (B2 × 3) and remove the SW-929 board.


SW-929 board bracket
Screw B2.6 × 4
Screws B2.6 × 4
SW-929 board
CN101
Screw B2 × 3
GCN-15 board
CN802
CN804
FP-99 board
Right panel

2-11-4. DPR-99/99P and ES-21/21P Boards

1. Open the right panel. (Refer to section 2-2-2.)
2. Open the board lever of the DPR-99 and ES-21 boards in the arrow direction, and pull out the DPR-99/99P and ES-21/21P boards.

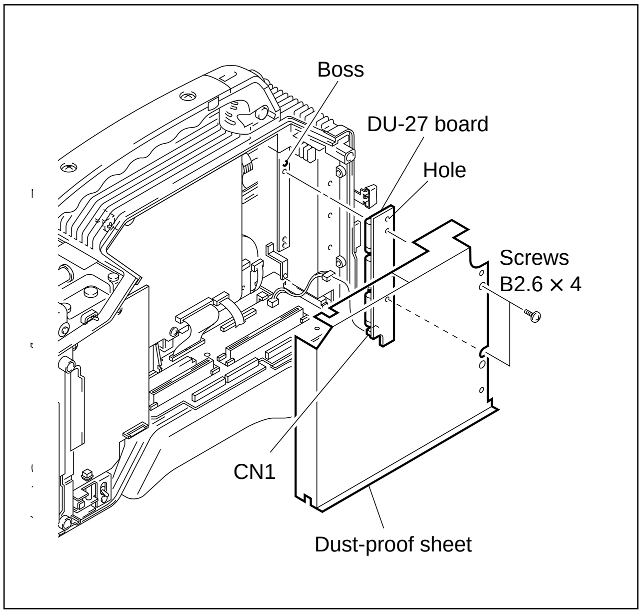


Point to notice when attaching the board:
Insert the board along the right and left sides of rails until it securely comes in contact with the MB-753 board.

Note: **Be sure to perform menu's "Page 24 Memory Backup" after the DPR-99/99P and ES-21/21P boards replacement. (Refer to section 2-26-3.)**

2-11-5. DU-27 Board

1. Remove the DPR-99/99P and ES-21/21P boards. (Refer to section 2-11-4.)
2. Remove the two screws (B2.6 × 4) and remove the dust-proof sheet.
3. Disconnect the connector CN1 from the DU-27 board, then remove the DU-27 board.

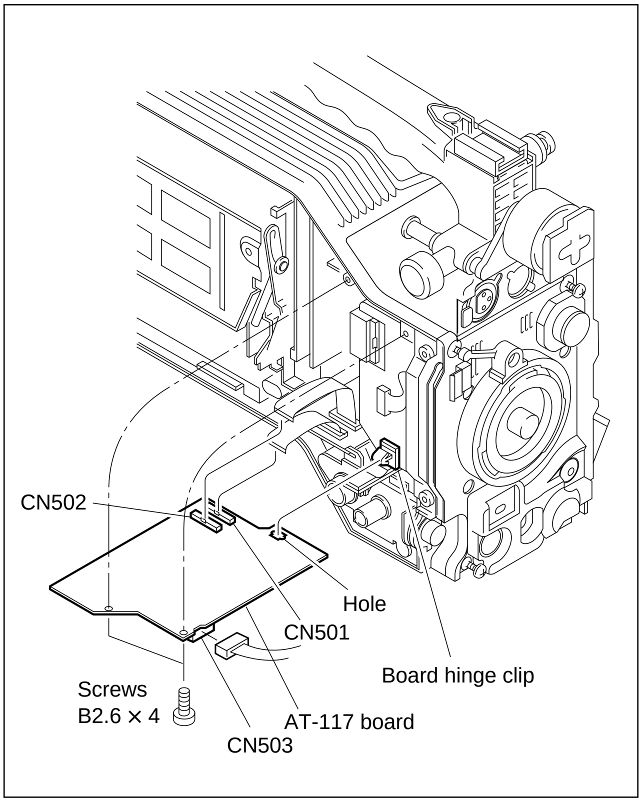


Point to notice when attaching the board:
Align the hole of the DU-27 board with a boss portion of the frame assembly.

2-11-6. AT-117 Board

1. Remove the left panel and cassette compartment lid. (Refer to section 2-2-1.)
2. Disconnect the connector CN503 from the AT-117 board and remove the two screws (B2.6 × 4).
3. Disconnect the two flat cables (CN501 and CN502) from the AT-117 board. While picking the board hinge clip, remove the AT-117 board.

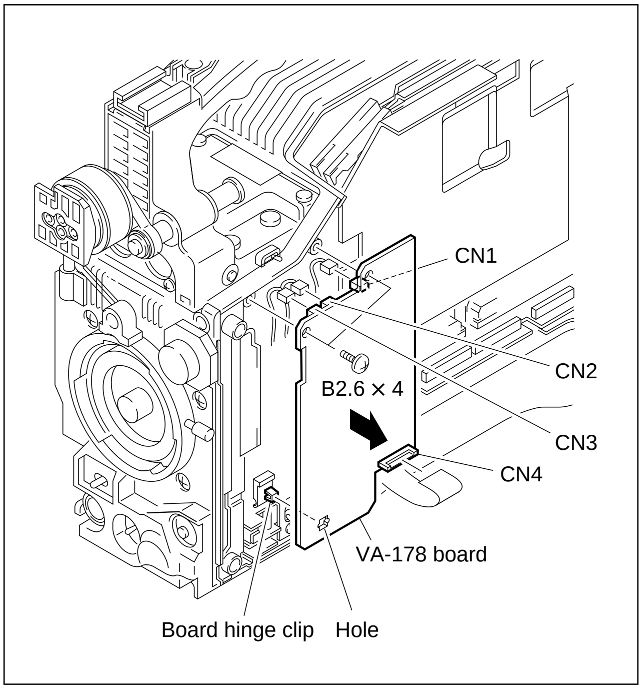
Point to notice when attaching the board:
Align the board hinge clip with hole.


CN502
Hole
CN501
Board hinge clip
Screws
B2.6 × 4
AT-117 board
CN503

2-11-7. VA-178 Board

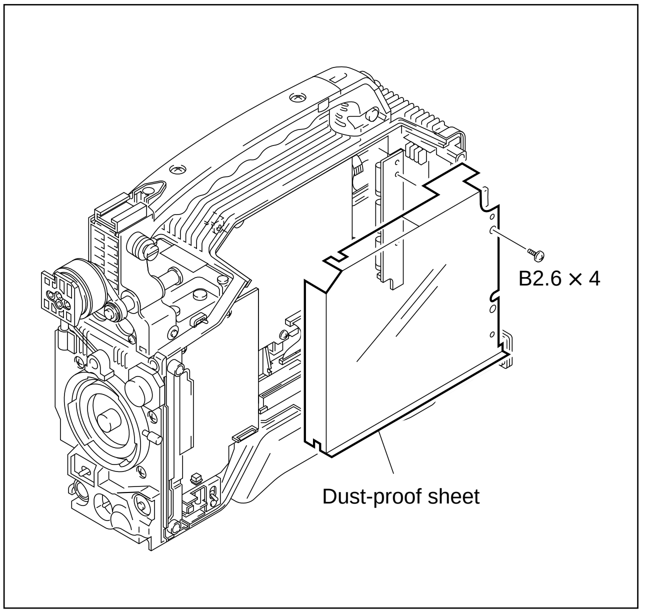
1. Open the right panel. (Refer to section 2-2-2.)
2. Disconnect the flat cable (CN4) and the three connectors (CN1, CN2, and CN3) from the VA-178 board.
3. Remove the two screws (B2.6 × 4). While picking the board hinge clip, remove the VA-178 board.

Point to notice when attaching the board:
Align the board hinge clip with hole.


CN1
CN2
B2.6 × 4
CN3
CN4
VA-178 board
Board hinge clip
Hole

2-11-8. SV-164 Board

1. Open the right panel. (Refer to section 2-2-2.)
2. Remove the ES-21/21P and DPR-99/99P boards. (Refer to section 2-11-4.)
3. Remove the screw (B2.6 × 4) and remove the dust-proof sheet.

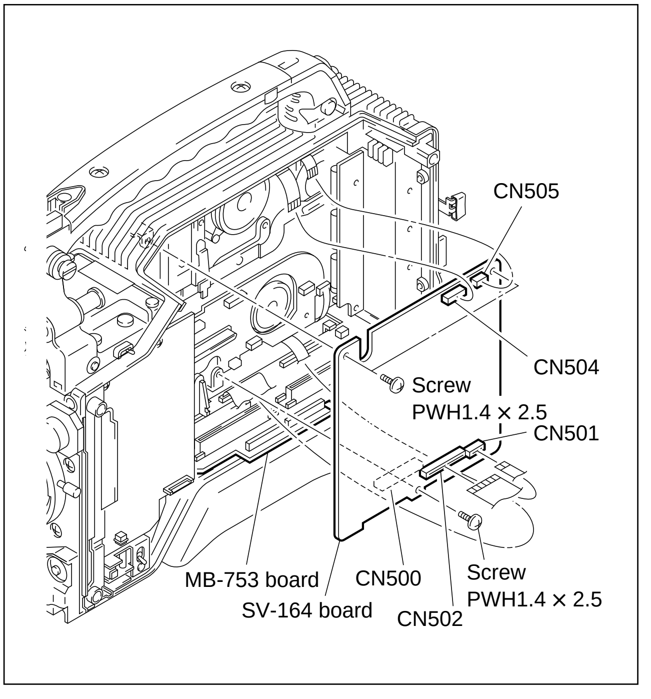

B2.6 × 4
Dust-proof sheet

4. Disconnect the two flat cables (CN501 and CN502) and two flexible cards (CN504 and CN505) from the SV-164 board.
5. Remove the three screws (PWH1.4 × 2.5), disconnect the connector CN500, and remove the SV-164 board.

Point to notice when disconnecting the connector:
In order to prevent the board from damage, pull out the connector CN500 gradually.

Point to notice when connecting the connector:
Be sure not to apply excessive force to the component side of the SV-164 board when connecting the connector CN500.

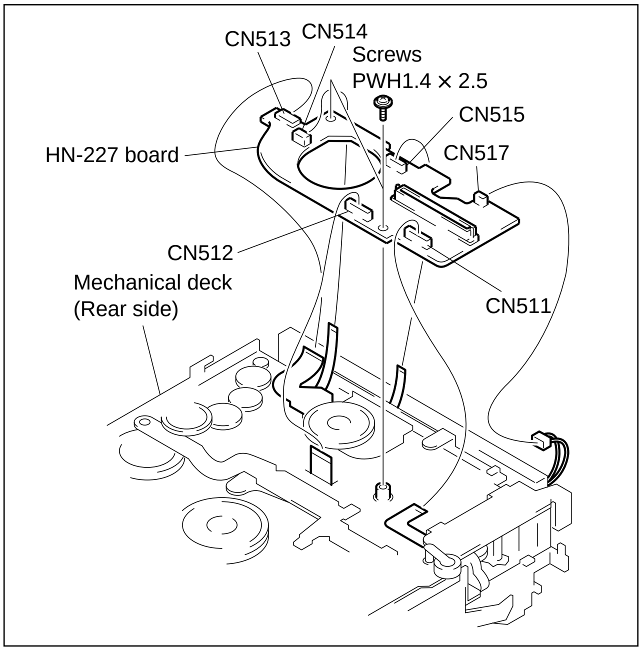
Point to notice when removing/installing the board:
Be very careful not to damage the connectors, harnesses, and flexible card boards that are connected to the MB-753 board.


CN505
CN504
Screw
PWH1.4 × 2.5
CN501
MB-753 board
SV-164 board
CN500
CN502
Screw
PWH1.4 × 2.5

2-11-9. HN-227 Board

1. Remove the mechanical deck. (Refer to section 2-11.)
2. Remove the SV-164 board. (Refer to steps 4 and 5 of section 2-11-8.)
3. Disconnect the five flexible cards (CN511, CN512, CN513, CN514, and CN515) from the HN-227 board.
4. Disconnect the connector CN517 from the HN-227 board.
5. Remove the two screws (PWH1.4 × 2.5) and remove the HN-227 board.

Note: When replacing the HN-227 board, remove IC1 from the former HN-227 board, then mount it on the new HN-227 board.

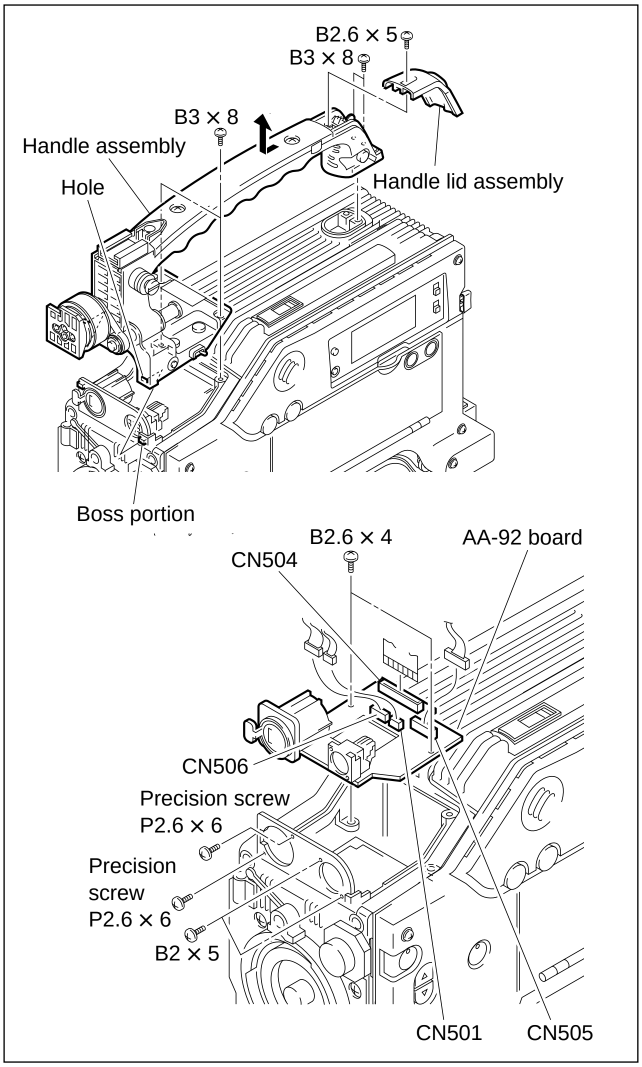

CN513
CN514
Screws
PWH1.4 × 2.5
CN515
HN-227 board
CN517
CN512
Mechanical deck
(Rear side)
CN511

2-11-10. AA-92 Board

1. Remove the screw (B2.6 × 5) and remove the handle lid assembly.
2. Remove the four screws (B3 × 8) and remove the handle assembly in the arrow direction.

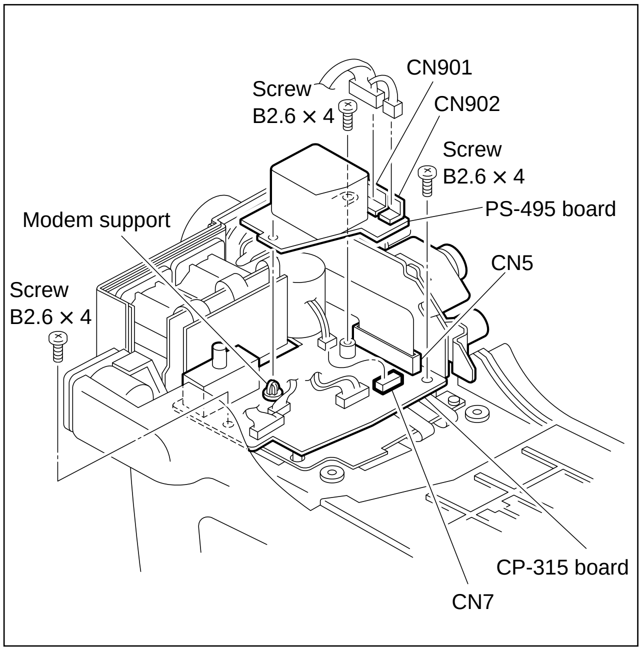
Point to notice when attaching the board:
Align the boss portion with square hole when installing the handle assembly.

3. Disconnect the flat cable (CN504) and the three connectors (CN501, CN505, and CN506) from the AA-92 board.
4. Remove the six screws (Precision P2.6 × 6, B2 × 5, and B2.6 × 4) and remove the AA-92 board.


B2.6 × 5
B3 × 8
B3 × 8
Handle assembly
Hole
Handle lid assembly
Boss portion
B2.6 × 4
AA-92 board
CN504
CN506
Precision screw
P2.6 × 6
Precision
screw
P2.6 × 6
B2 × 5
CN501
CN505

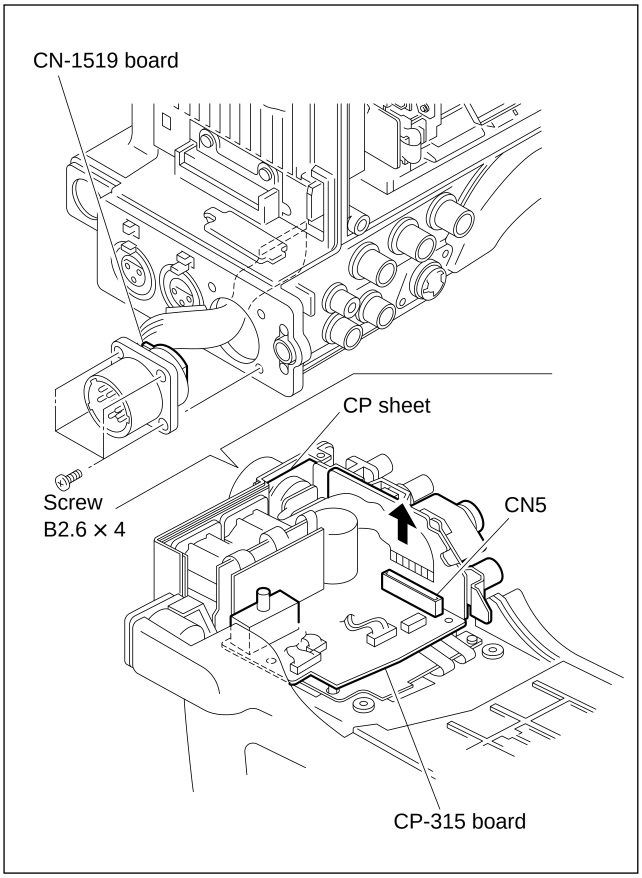
2-11-11. PS-495 Board

1. Remove the lower panel. (Refer to section 2-2-3.)
2. Disconnect the two connectors (CN901 and CN902) from the PS-495 board. Disconnect the connector CN7 from the CP-315 board.
3. Remove the screw (B2.6 × 4). While picking the modem support, remove the PS-495 board.


CN901
Screw
B2.6 × 4
CN902
Screw
B2.6 × 4
PS-495 board
Modem support
CN5
Screw
B2.6 × 4
CP-315 board
CN7

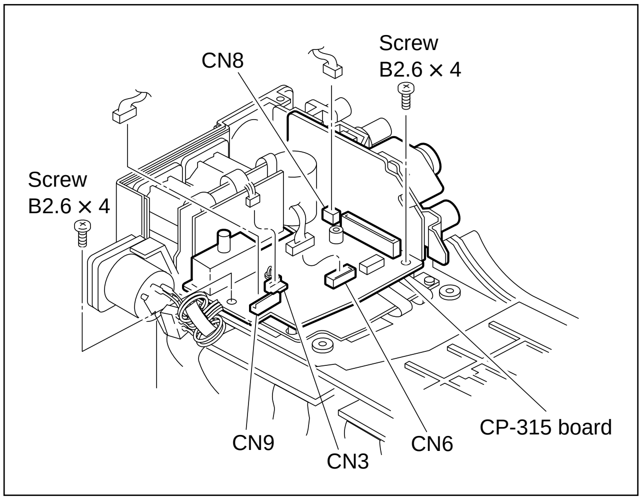
2-11-12. CN-1519 Board

1. Remove the lower panel. (Refer to section 2-2-3.)
2. Remove the PS-495 board. (Refer to section 2-11-11.)
3. Disconnect the flexible card CN5 from the CP-315 board and remove the four screws (B2.6 × 4).
4. While opening the CP sheet, remove the CN-1519 board.

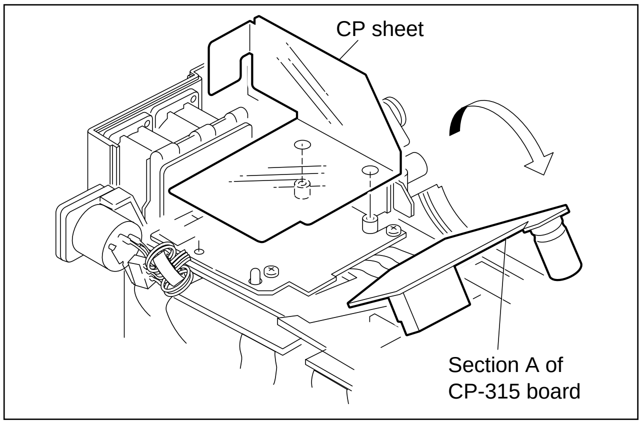

CN-1519 board
CP sheet
Screw
B2.6 × 4
CN5
CP-315 board

2-11-13. CP-315 Board

1. Remove the left panel, right panel, CN-1519 board, and PS-495 board.
   (Refer to sections 2-2-1, 2-2-2, 2-11-11, and 2-11-12.)
2. Disconnect the four connectors (CN3, CN6, CN8 and CN9) and remove the two screws (B2.6 × 4) from the CP-315 board.


CN8
Screw
B2.6 × 4
Screw
B2.6 × 4
CN9
CN3
CN6
CP-315 board

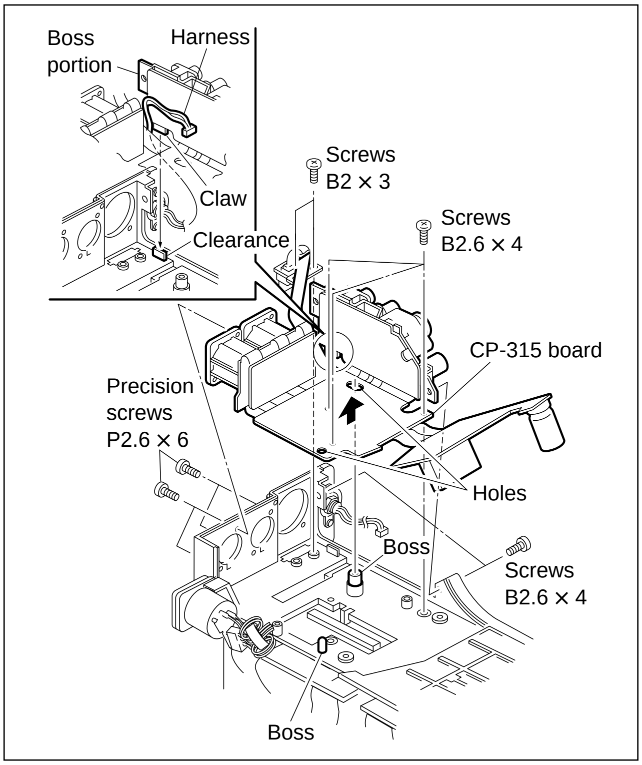
3. While opening section A of the CP-315 board in the arrow direction, remove the CP sheet.


CP sheet
Section A of
CP-315 board

4. Remove the nine screws (B2.6 × 4, precision screw P2.6 × 6, and B2 × 3).
5. Remove the CP-315 board in the arrow direction.

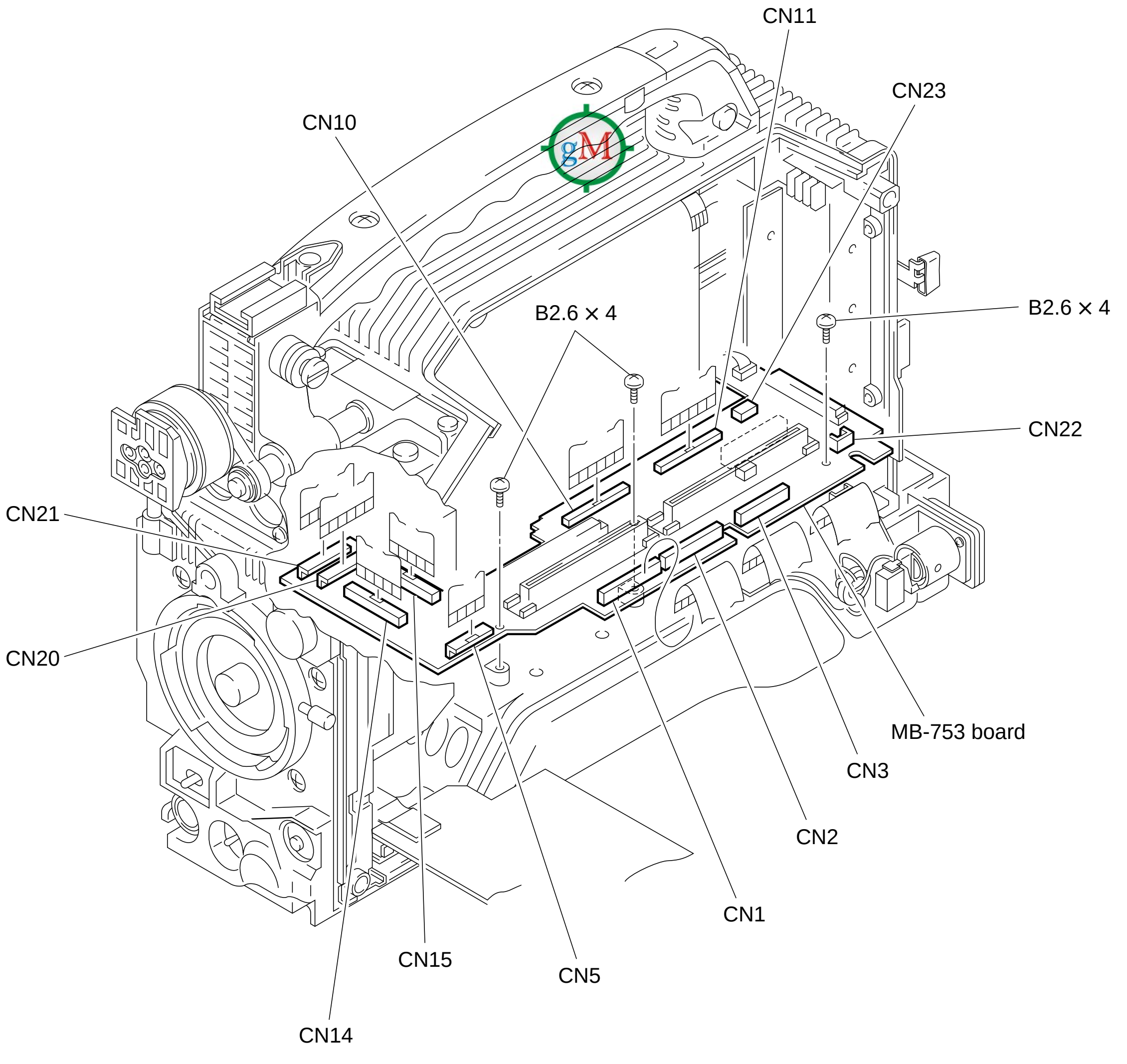
Point to notice when attaching the board:

1. Be sure to insert the claw into clearance.
2. Be sure to pass the harness through underneath boss portion.


Boss
portion
Harness
Claw
Clearance
Screws
B2 × 3
Screws
B2.6 × 4
CP-315 board
Precision
screws
P2.6 × 6
Holes
Boss
Screws
B2.6 × 4
Boss

2-11-14. MB-753 Board

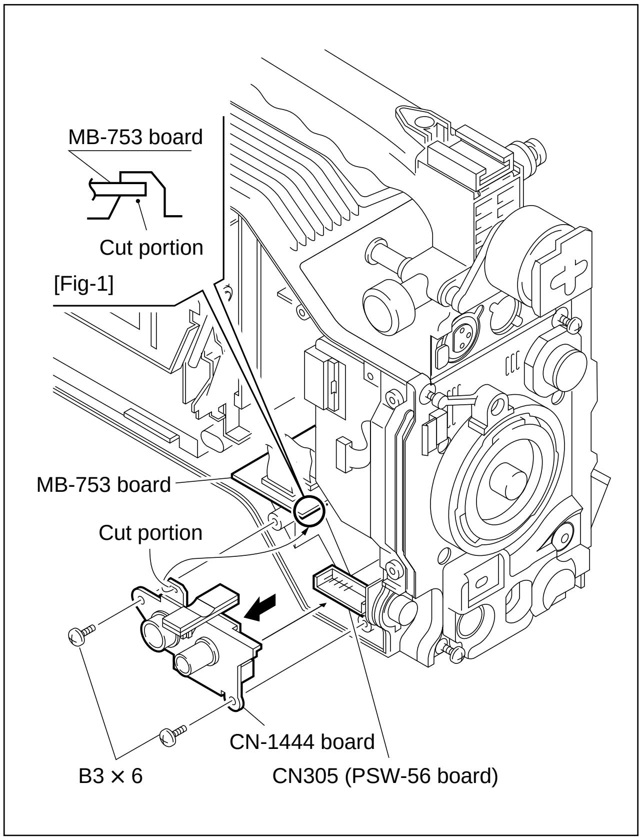
1. Remove the left and right panels.
   (Refer to sections 2-2-1 and 2-2-2.)
2. Remove the rear panel assembly and dc-dc converter.
   (Refer to section 2-2-4 and 4-35.)
3. Remove the ES-21/21P, DPR-99/99P, AT-117, VA-178, CN-1519, PS-495, and CP-315 boards. (Refer to sections 2-11-4, 2-11-6, 2-11-7, 2-11-11, 2-11-12, and 2-11-13.)
4. Remove the screw (B2.6 × 4), and remove the dust-proof sheet. (Refer to section 2-11-8.)
5. Disconnect the two connectors (CN22 and CN23) and ten flat cables (CN1, CN2, CN3, CN5, CN10, CN11, CN14, CN15, CN20, and CN21) from the MB-753 board.
6. Remove the three screws (B2.6 × 4) and remove the MB-753 board.


CN11
CN23
CN10
B2.6 × 4
B2.6 × 4
CN22
CN21
CN20
MB-753 board
CN3
CN2
CN1
CN15
CN5
CN14

2-11-15. CN-1444 Board

1. Remove the left panel and remove the AT-117 board. (Refer to sections 2-2-1 and 2-11-6.)
2. Remove the two screws (B3 × 6) and remove the CN-1444 board in the arrow direction.

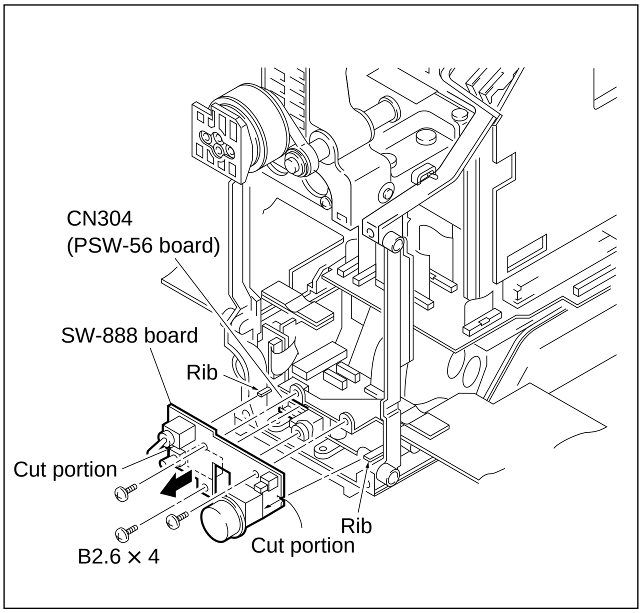
Point to notice when attaching the board:
Align the MB-753 board with cut portion and insert the CN-1444 board to CN305 on the PSW-56 board.


MB-753 board
Cut portion
[Fig-1]
MB-753 board
Cut portion
CN-1444 board
B3 × 6
CN305 (PSW-56 board)

2-11-16. SW-888 Board

1. Remove the front unit assembly. (Refer to section 4-34.)
2. Remove the three screws (B2.6 × 4) and remove the SW-888 board in the arrow direction.

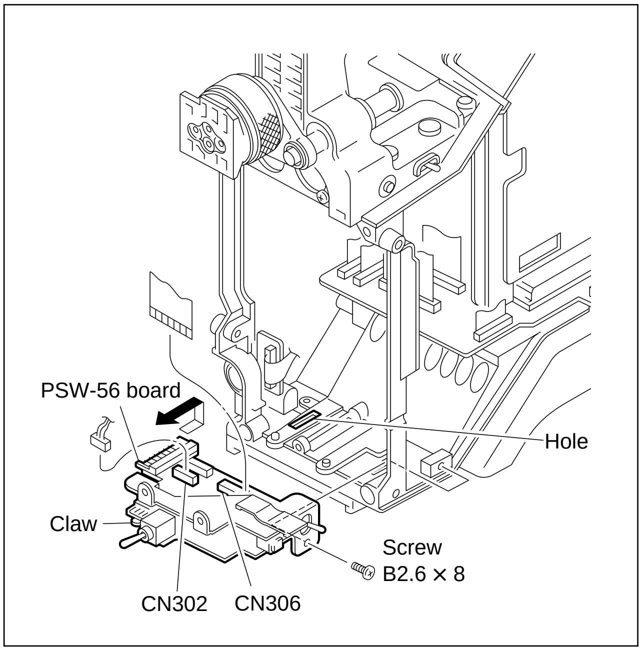
Point to notice when attaching the board:
Align the two cut portions with ribs and insert the SW-888 board to CN304 on the PSW-56 board.


CN304
(PSW-56 board)
SW-888 board
Rib
Cut portion
B2.6 × 4
Cut portion
Rib

2-11-17. PSW-56 Board

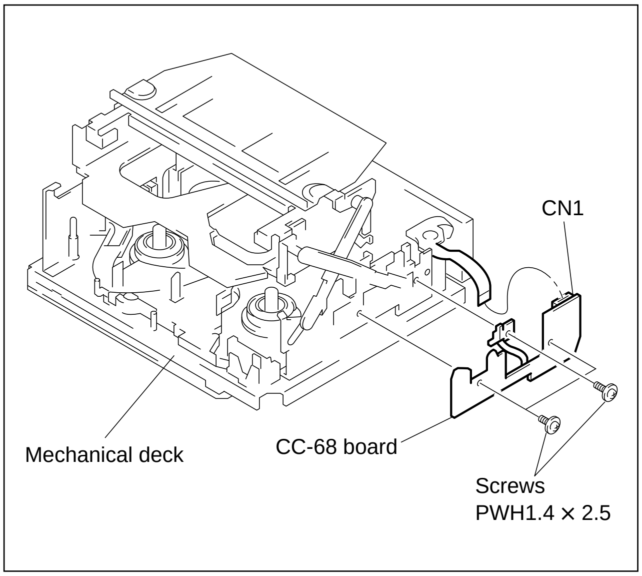
1. Remove the CN-1444 and SW-888 boards.
   (Refer to sections 2-11-15 and 2-11-16.)
2. Remove the screw (B2.6 × 8).
3. Disconnect the flat cable (CN306) and connector (CN302) from the PSW-56 board, and remove the PSW-56 board in the arrow direction.

Point to notice when attaching the board:
Be sure to hook the claw to the hole.


PSW-56 board
Hole
Claw
Screw
B2.6 × 8
CN302
CN306

2-11-18. CC-68 Board

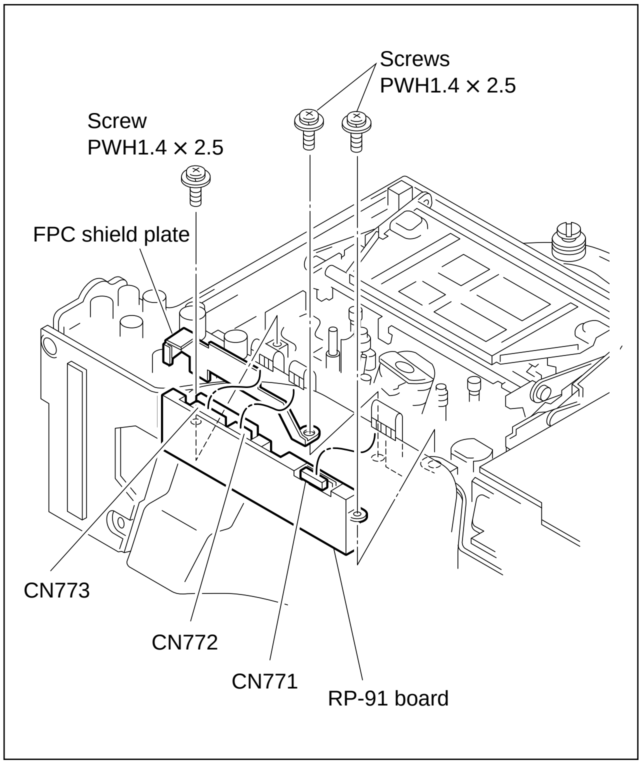
1. Remove the mechanical deck. (Refer to section 2-10.)
2. Disconnect the flexible card (CN1) from the CC-68 board.
3. Remove the two screws (PWH1.4 × 2.5) and remove the CC-68 board.


CN1
Mechanical deck
CC-68 board
Screws
PWH1.4 × 2.5

2-11-19. RP-91 Board

1. Remove the left panel. (Refer to section 2-2-1.)
2. Disconnect the flexible card (CN771) and the two flat cables (CN772 and CN773).
3. Remove the three screws (PWH1.4 × 2.5) and remove the FPC shield plate and the RP-91 board.

Note: Be sure to perform section 8 VTR Block Electrical Alignment after the replacement of RP-91 board.


Screws
PWH1.4 × 2.5
Screw
PWH1.4 × 2.5
FPC shield plate
CN773
CN772
CN771
RP-91 board

2-12. ATTACHING THE DSBK-301 (IPM-66 BOARD)

Refer to section 1-2. DSBK-301 (IPM-66 BOARD) for more detail.

2-13. CLEANING WHEN HEAD CLOGS

When the video head clogs, clean it as follows:

2-13-1. Using a Cleaning Cassette

1. Load the DVL-12CL cleaning cassette into the unit, play for 5 seconds, and then eject promptly.

Note:
- **Be sure to use the DVL-12CL cleaning cassette tape.**
  Use of other types will cause abnormal wear of the video head or damage to the video head.
- **Do not use the rewound cleaning cassette tape.**

2. Check that the head clog has been solved. If the head remains clogged even after using the cleaning cassette, clean the video head as follows:

2-13-2. Using the Cleaning Cloth

1. Using a cleaning cloth moistened with cleaning liquid, gently touch the cloth on the video head.
2. Rotate the drum slowly in the rotating direction of the head (towards the left from the top) with your fingers, and clean the video head.

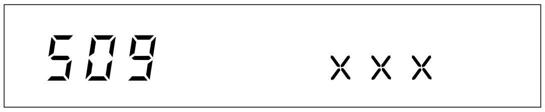
Note:
- **Do not move the cleaning cloth over the video head in the vertical direction as this may damage the video head.**
- **Turn OFF the power when cleaning.**

http://getMANUAL.com

2-14. RELEASING THE HUMID TIMER WHEN CONDENSATION OCCURS

To protect the tape when dew condensation occurs, HUMID ALARM is displayed, and the VTR stops for a specified time set by the HUMID TIMER.
HUMID TIMER is a timer to stop operations for protecting the tape when condensation occurs. It is a function provided for the unit to clear condensation naturally.
When the condensation is cleared manually, the HUMID TIMER will not be turned off even when there is no condensation, and the unit will not operate.
To clear the condensation manually, and to operate the VTR, turn OFF the HUMID TIMER as follows:

1. Set the unit in SYSTEM MENU (Refer to section 2-25-2), and set the HUMID TIMER OFF mode (Menu No. 509).



∗ X X X indicates the remaining time.

2. Press the RESET button twice, and if X X X is 0, it means that the HUMID TIMER has been turned off.

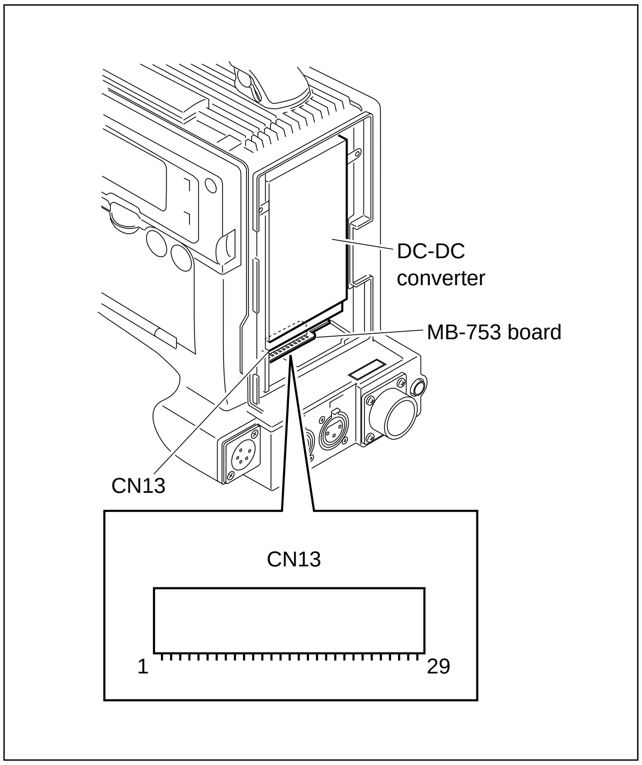
Note: **If HUMID TIMER is not released by performing items 1 and 2, Condensation is not completely cleared, therefore, clear condensation one more.**

2-15. DC-DC CONVERTER VOLTAGE CONFIRMATION

Output voltages of the dc-dc converter can be checked at the test points on the MB-753 board and front MIC connector.

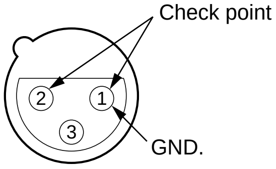
- Connector CN13 of MB-753 Board
  To measure the voltages, remove the four screws and open the rear panel.

Check point	Voltage
Pin 1	SWD EXT DC
Pin 3	UNREG GND
Pin 7	+3.4 V
Pin 9	+3.1 V
Pin 13	−5 V
Pin 15	+5.0 V
Pin 17	+5.3 V
Pin 19	+6.6 V
Pin 21	+9.0 V
Pin 25	+6.0 V
Pin 29	+16.1 V


DC-DC
converter
MB-753 board
CN13
CN13
1
29

- Front MIC Connector

Check point	Voltage
Pin 2/Pin 1 (GND)	+48 V


Check point
2
1
3
GND.

(External view)

2-16. CONNECTING CONNECTORS

When connecting cables to connectors in installation and servicing, attach the following connectors or equivalent product to the tip of the cables.

Panel display	Connecting connector
CH-1/CH-2 AUDIO IN (+48 V)	1-508-084-00 CONNECTOR, XLR 3P, MALE
DC IN	1-508-362-00 CONNECTOR, XLR 4P, FEMALE
TC IN/OUT	1-560-069-11 CONNECTOR, BNC, MALE
GENLOCK IN	1-560-069-11 CONNECTOR, BNC, MALE
MONITOR OUT	1-560-069-11 CONNECTOR, BNC, MALE
EAR PHONE	PLUG, MINI, STEREO
DC OUT (+12 V)	1-566-425-11 PLUG, 4P, MALE
CH-1/CH-2 AUDIO OUT	1-506-311-00 RCA PIN, MALE
S-VIDEO OUT	S-VIDEO CONNECTOR CABLE (Option): YC-30 V (3 m) YC-15 V (1.5 m)
REMOTE (10P, FEMALE)	1-506-522-11 CONNECTOR, ROUND 10P, MALE HIROSE HR 10A-10P-10P or equivalent or CCA-7-20 Cable assembly (Sold separately)
VIDEO OUT (BNC)	1-560-661-11 PLUG, BNC
LENS (12P, FEMALE)	1-564-360-11 CONNECTOR, 12P, MALE HIROSE HR 10-10PA-12P or equivalent
MIC (3P, FEMALE)	1-508-084-31 CONNECTOR, 3P, MALE CANNON XLA-3-12C or equivalent
VF (20P, FEMALE)	1-778-661-11 CONNECTOR, 20P, MALE HIROSE HR 12-14PA-20PC or equivalent
EXT VTR (26P, MALE)	1-564-184-21 PLUG, CONNECTOR (SOCKET) 26P FEMALE ・For 14P-VTR use CCZQ-A2 (2 m) CCZQ-A5 (5 m) CCZQ-A10 (10 m) ・For 26P-VTR use CCZ-A2 (2 m) CCZ-A5 (5 m) CCZ-A10 (10 m)
WRR (7P, FEMALE)	1-569-200-11 CONNECTOR, 7P, MALE
BATTERY (5P, MALE)	1-784-815-11 PLUG, 5P, FEMALE

2-17. INPUT/OUTPUT SIGNALS OF CONNECTORS

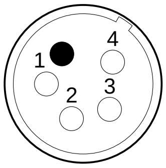
Inputs

GENLOCK IN: BNC type
1.0 Vp-p, 75 Ω, sync negative
TC IN: BNC type
0.5 to 18 Vp-p, 10 kΩ

Outputs

MONITOR OUT: BNC type
VIDEO OUT: BNC type
1.0 Vp-p, 75 Ω, sync negative
TC OUT: BNC type
1.0 Vp-p, 75 Ω
EAR PHONE: −∞ to −15.5 dBu variable, 8 Ω
(Stereo mini jack)
AUDIO 1/2: RCA PIN −10 dBu, 47 kΩ

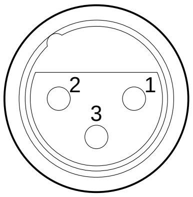
DC IN (4P, MALE)



(External view)

Pin No.	Signal	Specification
1	EXT DC IN (G)	GND
2	—	—
3	—	—
4	EXT DC IN (X)	+11 to +17 Vdc

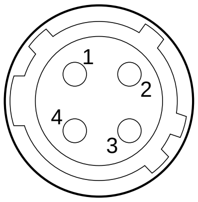
CH-1/CH-2 AUDIO IN (+48 V) (3P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	MIC IN (G)	GND
2	MIC IN (X)	−60 dBu Zi ≧ 3 kΩ/+4 dBu, 10 kΩ BALANCED
3	MIC IN (Y)	

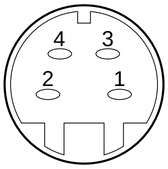
DC OUT (4P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	EXT DC OUT (G)	GND
2	—	—
3	—	—
4	EXT DC OUT (X)	+11 to +17 Vdc

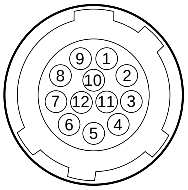
S-VIDEO (4P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	Y (G)	Y: 1.0 Vp-p, 75 Ω, sync negative C: For DSR-300 0.286 Vp-p (burst level), 75 Ω For DSR-300P 0.3 Vp-p (burst level), 75 Ω
2	C (G)	
3	Y (X)	
4	C (X)	

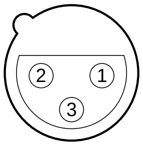
LENS (12P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	RET SW IN	ON: 0 ±0.5 Vdc
2	VTR START/STOP IN	TRIG: 0 ±0.5 V
3	POWER +12 V DC GND	GND for +12 Vdc
4	COMPULSORY AUTO IRIS CONT OUT	AUTO: 4.5 ±0.5 V MANU: 0 + 0.5 V or OPEN
5	IRIS CONT OUT	F16: 3.4 Vdc F2.8: 6.2 Vdc
6	POWER +12 V DC OUT	10.6 V to 17.0 Vdc
7	IRIS POSI IN	F16: 3.4 ±0.1 Vdc F2.8: 6.2 ±0.1 Vdc
8	REMOTE/$\overline{\text{LOCAL}}$ OUT	REMOTE: 5 V LOCAL: 0 V
9	EXTND $\overline{\text{ON}}$/OFF IN	
10	ZOOM POSI IN	
11	(SPARE)	
12	(SPARE)	

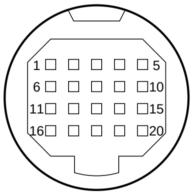
MIC (3P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	MIC (G) IN	GND for MIC
2	MIC (X) IN	−60 dB BALANCED (0 dB = 0.775 V)
3	MIC (Y) IN	

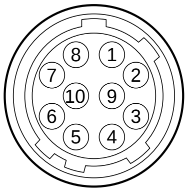
VF (20P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	PEAKING CONT IN	Zi ≧ 5 kΩ
2	POWER +12 V DC OUT	10.6 V to 17.0 Vdc
3	REC TALLY IND OUT	Zo ≦ 500 Ω
4	BATT IND OUT	Zo ≦ 1.1 kΩ
5	ZEBRA SW IN	ON: 0 ±0.5 V
6	VF VIDEO (X) OUT	V = 1.0 Vp-p
7	POWER +12 V DC OUT	10.6 V to 17.0 Vdc
8	(SPARE)	
9	(SPARE)	
10	SDA (VF) OUT	Zo ≦ 500 Ω, 5 Vp-p
11	VF VIDEO (G) OUT	GND for VF VIDEO
12	POWER +12 V DC GND	GND for +12 Vdc
13	(SPARE)	
14	(SPARE)	
15	SCL (VF) OUT	Zo ≦ 500 Ω, 5 Vp-p
16	R-Y (VF) OUT	V = 830 mV
17	POWER +12 V DC GND	GND for +12 Vdc
18	B-Y (VF) OUT	V = 830 mV
19	SYNC (VF) OUT	V = 5 Vp-p
20	LD (VF) OUT	Zo ≦ 500 Ω, 5 Vp-p

REMOTE (10P, FEMALE)



(External view)

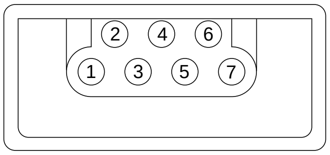
- When connecting the RM-M7G or RCP-TX7

Pin No.	Signal	Specification
1	VJ CONNECT	5.0 V
2	VBS (RM) (OUT)	1.0 Vp-p, SYNC NEGATIVE
3	VBS (RM) (OUT)	
4	RS232C (C/RM) IN	
5	VTR START/STOP IN	Zi ≧ 10 kΩ ········ OPEN (4.5 ±0.5 V) ········ 0 ±0.5 V
6	S.DATA (X)	0 to 5 V Zi ≧ 10 kΩ
7	RS232C (RM/C) OUT	GND for S.DATA
8	REC TALLY IND OUT	Zo ≧ 600 Ω
9	POWER +12 V DC GND	GND for +12 Vdc
10	POWER +12 V DC OUT	10.6 V to 17.0 Vdc

- When connecting the RM-VJ1

Pin No.	Signal	Specification
1	VJ-CONNECT	5.0 V
2	VBS (RM) OUT	1.0 Vp-p, SYNC NEGATIVE
3	VBS (RM) OUT	
4	AUDIO (Y) IN	−30 dB BALANCED
5	AUDIO (X) IN	
6	RS232C (C/RM) IN	
7	RS232C (RM/C) OUT	
8	REC TALLY IND OUT	Zo ≧ 60 Ω
9	POWER +12 V DC GND	GND for +12 Vdc
10	POWER +12 V DC OUT	10.6 V to 17.0 Vdc

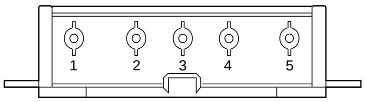
WRR (7P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	WIRELESS GND	
2	AF OUTPUT (X)	−40 dBu BALANCED Zi ≧ 3 kΩ
3	AF OUTPUT (Y)	
4	(SPARE)	
5	(SPARE)	
6	(SPARE)	
7	POWER +12 V DC OUT	10.6 V to 17.0 Vdc

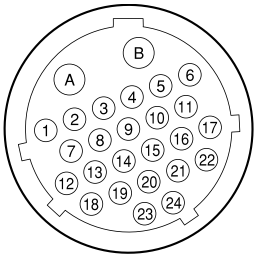
BATTERY (5P, MALE)



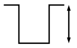
(External view)

Pin No.	Signal	Specification
1	BATTERY	GND
2	BATTERY CONT	Zo ≦ 500 Ω
3	BATTERY REMAIN	Zo ≦ 500 Ω
4	BATTERY ID	Zi ≧ 10 kΩ
5	BATTERY (+)	+12 V DC IN 10.6 V to 17.0 V

EXT VTR (26P, MALE)



(External view)

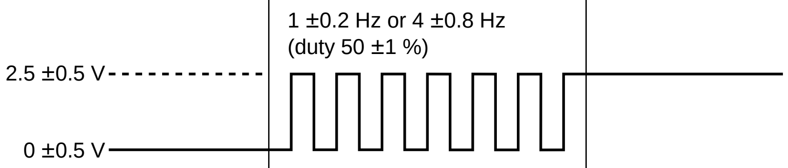
Pin No.	Signal	Specification
A	EXT DC (CCZ) IN (X)	Sensing for power save circuit (ES-21/21P)
B	EXT DC IN (G)	—
*1	EN/Y VIDEO OUT (X)	VBS/Y = 1.0 Vp-p ±1 dB (100 %) Zo = 75 Ω ±5 % DC = 0 ±100 mV
*2	EN/CF/CHROMA (G)	GND for ADP VIDEO
*3	Y OUT (G)	GND for Y
*4	Y OUT (X)	VS = 1.0 Vp-p ±0.5 dB (100 %) Zo = 75 Ω ±5 % DC = 0 ±200 mV
*5	R-Y OUT (X)	VS = 756 mVp-p ±2 % [for DSR-300] 525 mVp-p ±2 % [for DSR-300P] (75 % COLOR BARS) Zo = 75 Ω ±5 % DC = 0 ±200 mV
*6	R-Y OUT (G)	GND for R-Y
*7	B-Y OUT (X)	VS = 756 mVp-p ±2 % [for DSR-300] 525 mVp-p ±2 % [for DSR-300P] (75 % COLOR BARS) Zo = 75 Ω ±5 % DC = 0 ±200 mV
*8	B-Y OUT (G)	GND for B-Y
9	MIC OUT (X)	−60 dBm/−20 dBm Zo ≦ 600 Ω BALANCED
10	MIC OUT (Y)	
11	MIC OUT (G)	GND for MIC
12	VTR START/STOP OUT TALLY OUT	START: 4.5 ±0.5 V STOP: 0 +0.5 V Zo ≦ 10 kΩ
13	BATT IND IN	Zi ≧ 300 Ω (Note 1)
14	(SPARE)	—
15	REC ALARM IN	Zi = 20 kΩ (Note 2)
16	(SPARE)	—
17	AUDIO MONITOR IN (G)	GND for AUDIO MONITOR
18	RET/PB VIDEO IN (X)	Zi = 75 Ω ±5 % VS = 1.0 Vp-p ±1 % (100 %) DC = 0 ±200 mV
19	RET/PB VIDEO IN (G)	GND for PB VIDEO
20	AUDIO MONITOR IN (X)	Zi =750 Ω (1 kHz) SAVE: 4.5 ±0.5 V STANDBY: 9.0 +1.0 V −0.5 V Zo ≧ 10 kΩ
21	(SPARE)	—
*22	CF/CHROMA OUT (X)	CF:  5.0 ±1.0 Vp-p Zo = 1 kΩ ±5 % DC = 0 ±200 mV CHROMA: 286 mVp-p [for DSR-300] 300 mVp-p [for DSR-300P] Zo = 75 Ω DC = 0 ±200 mV
23	(SPARE)	—
24	(SPARE)	—

∗ Selection with EXT VTR output switch

	COMPONENT VBS	Y/C
1	EN VIDEO OUT (X)	Y OUT (X)
2	EN VIDEO/CF OUT (G)	Y/CHROMA OUT (G)
3	Y OUT (G)	—
4	Y OUT (X)	—
5	R-Y OUT (X)	—
6	R-Y OUT (G)	—
7	B-Y OUT (X)	—
8	B-Y OUT (G)	—
22	CF OUT (X)	CHROMA OUT (X)

Note 1: 13 pin (BATT IND IN)

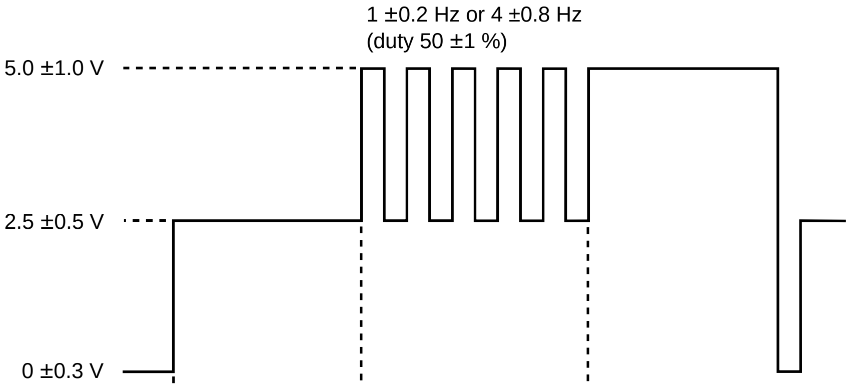
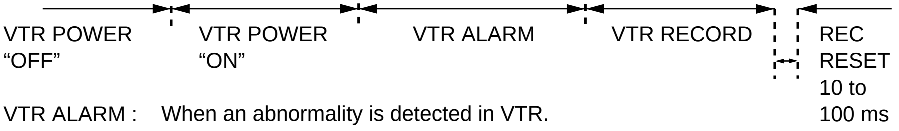
The EXT VTR connected to the EXT VTR connector (CCZ 26pin) has a battery voltage detection circuit and warning signal output circuit. The circuit informs the camera of the battery voltage drop by sending the following signal to pin 13. The camera uses the LED on the viewfinder to warn the user the condition.

VTR battery voltage	More than 11.1 Vdc	10.8 to 11.1 Vdc	Less than 10.8 Vdc
Spec.			
LED in viewfinder	Goes out	Blinks	Lights

1 ±0.2 Hz or 4 ±0.8 Hz
(duty 50 ±1 %)
2.5 ±0.5 V
0 ±0.5 V

Note 2: Pin 15 (REC ALARM IN)

This signal indicates the operating status of VTR. The specifications of the signal is shown below.

Spec.	
VTR operation	 VTR ALARM : When an abnormality is detected in VTR. When the VTR has started recording. VTR RECORD : When the VTR is recording. VTR RESET : When the recording is stopped from VTR side.

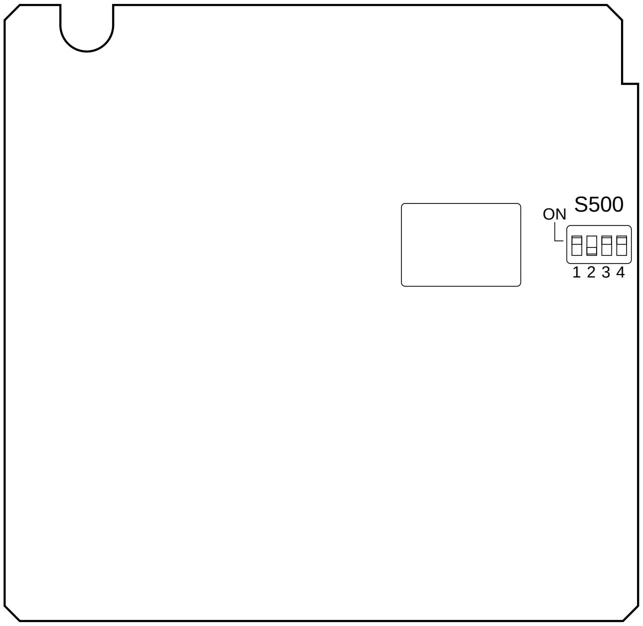
1 ±0.2 Hz or 4 ±0.8 Hz
(duty 50 ±1 %)
5.0 ±1.0 V
2.5 ±0.5 V
0 ±0.3 V
VTR POWER "OFF"
VTR POWER "ON"
VTR ALARM
VTR RECORD
REC RESET
10 to 100 ms

2-18. BOARD SWITCH AND SLIT SETTINGS

2-18-1. SV-164 Board

- **S500**
  Settings at shipment: ☐

1. DESTINATION setting
   ON: NTSC
   OFF: PAL
2. DESTINATION setting (Effective when pin 1 is on.)
   ON: UC
   OFF: J
3. DEBUGGING mode setting (for designer)
   ON: At shipment and all times
4. SLACK DETECTION ON/OFF switching
   ON: SLACK mute off
   OFF: SLACK mute on



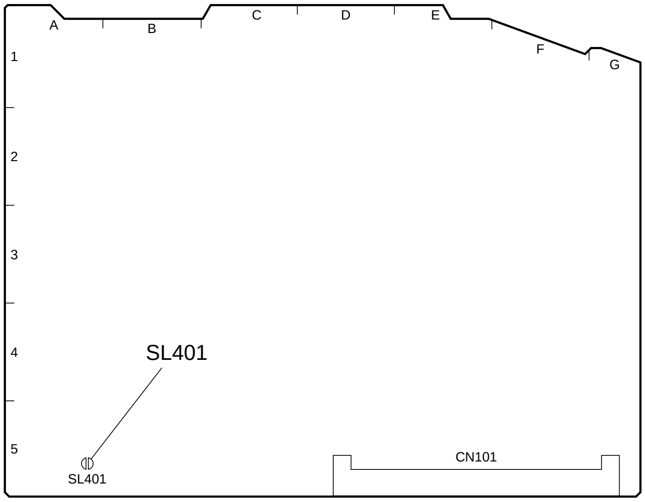
SV-164 board (A side)

2-18-2. ES-21/21P Board

SL401 (POWER SAVE)
When SL401 is opened and no external VTR is connected, current consumption of the unit can be reduced.

OPEN: current consumption reduction
The power supply circuit (Q419) on the ES-21 board is turned to ON when the external VTR has been connected to the EXT VTR connector (pin 26) on the rear panel and the power of the external VTR is turned to ON. As a result, various signals are output from pins 93 to 100 of the ES-21 board.
Usually, SL401 is set to "OPEN" position at the factory.

SHORT: current consumption no-reduction
Regardless of the EXT VTR connector's connection, the power supply circuit (Q419) on the ES-21 board is always ON, and the various signals are output from pins 93 to 100 of the ES-21 board.



ES-21 board (A side)

2-19. CHANGING THE BATTERY BEFORE END/BATTERY END AND BP BATTERY PRESET VOLTAGE

2-19-1. Changing the Voltage (1)

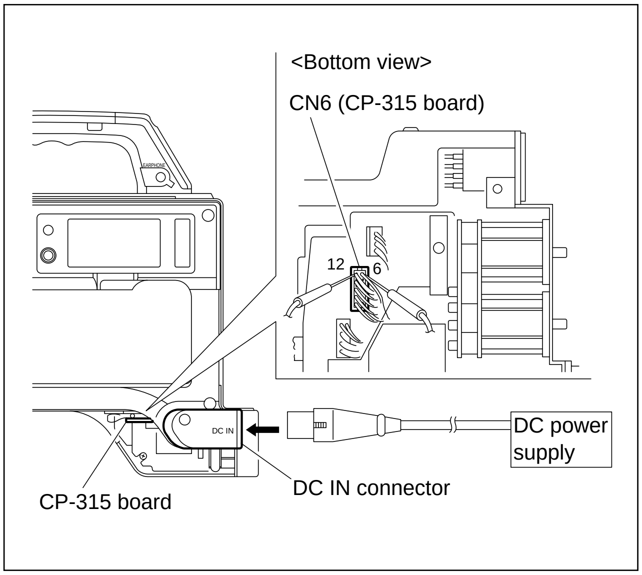
The battery before end/battery end and BP battery preset voltage can be changed as follows with an external DC power supply from the SYSTEM MENU.

Settable range:	11.0 to 12.5 V (Battery before end/ battery end) 12.0 to 15.9 V (BP battery preset)
Settable unit:	0.1 V
Settings at shipment:	Battery before end voltage: 11.27 V Battery end voltage: 10.95 V BP battery preset voltage: 12.97 V
Equipment required:	DC power supply, Digital voltmeter, DVCAM cassette tape
Switch settings:	LIGHT, BACK TALLY = OFF CAMERA = COLOR BAR

Setting

1. Remove the bottom panel. (Refer to section 2-2-3.)
2. Connect the DC power supply to DC IN connector.
3. Insert a cassette tape, and set the unit into the REC mode.

Note:
- **Touch the lead tip of the digital voltmeter to pin 6 (GND) and pin 12 (DC power) of connector CN6 on the CP-315 board as shown in Fig. 1, and adjust the DC power supply to the desired voltage.**
- **Be careful not to touch the lead tip of the digital voltmeter to the chassis and other connector pins.**



http://getMANUAL.com

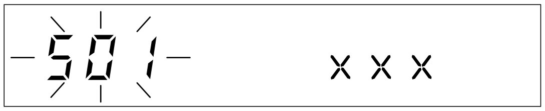
Setting the Battery Before End

1. Set the SYSTEM MENU (refer to section 2-25-2), and select the “Battery before end setting mode (Menu No. 501).” (Refer to Fig. A.)
2. Press the RESET (MENU SET) button to blink the voltage displayed on the display window (Fig. B). Input the desired voltage measured with the digital voltmeter into the DC IN connector. (Fig. 1)
3. Press the RESET (MENU SET) button. (The value set will be written in the EEPROM) and “YES” will be displayed when the desired voltage is set (Fig. C). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. D). In this case, repeat steps 1 to 3.

Note: **The voltage value shown on the display window is for reference only.**

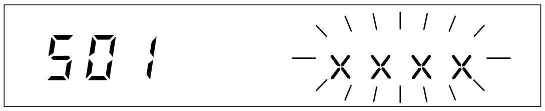
Display window (LCD)

A



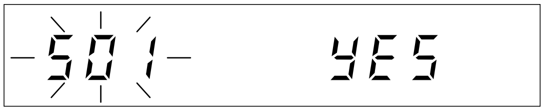
Blinking menu No. (When changed)

B



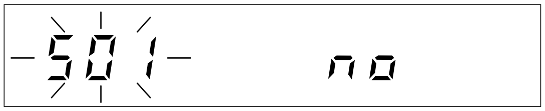
Voltage and A/D coversion value can be input

C



Save OK

D



Save NG

Setting the Battery End

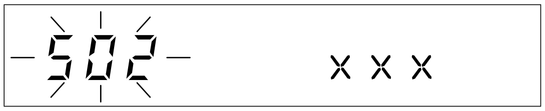
1. Set the SYSTEM MENU (refer to section 2-25-2), and select the “Battery end setting mode (Menu No. 502).” (Refer to Fig. A’.)
2. Press the RESET (MENU SET) button to blink the voltage displayed on the display window (Fig. B’). Input the desired voltage measured with the digital voltmeter into the DC IN connector. (Fig. 1.)
3. Press the RESET (MENU SET) button to write the set value in the EEPROM. “YES” will be displayed when the desired voltage is set (Fig. C’). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. D’). In this case, repeat steps 1 to 3.

Note:

- **VTR operations stop according to the battery end voltage set. Set the voltage as 10.95 ±0.01 V.**
- **The voltage value shown on the display window is for reference.**
- **If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET (MENU SET) button, the data being set will be written.**

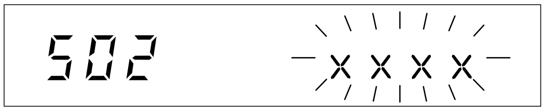
Display window (LCD)

A’



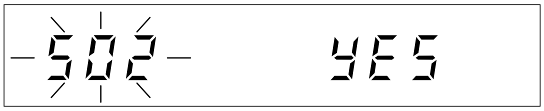
Blinking menu No. (When changed)

B’



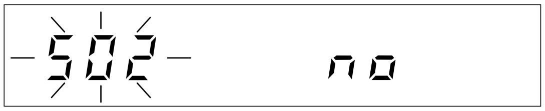
Voltage and A/D coversion value can be input

C’



Save OK

D’



Save NG

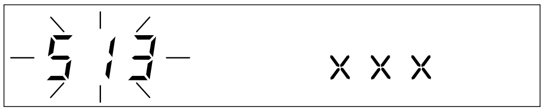
Setting the BP Battery Preset

1. Set the SYSTEM MENU (refer to section 2-25-2), and select the “BP battery preset mode (Menu No. 513).” (Refer to Fig. A”)
2. Press the RESET (MENU SET) button to blink the voltage displayed on the display window (Fig. B”). Input the desired voltage measured with the digital voltmeter into the DC IN connector. (Fig. 1.)
3. Press the RESET (MENU SET) button to write the set value in the EEPROM. “YES” will be displayed when the desired voltage is set (Fig. C”). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. D”). In this case, repeat steps 1 to 3.

Note:
- **Set the voltage as 12.97 ±0.01 V.**
- **The voltage value shown on the display window is for reference.**
- **If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET button, the data being set will be written.**

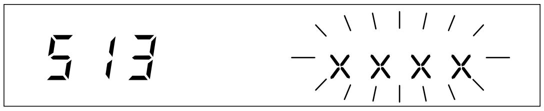
Display window (LCD)

A”



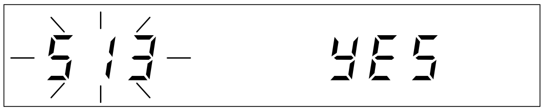
Blinking menu No. (When changed)

B”



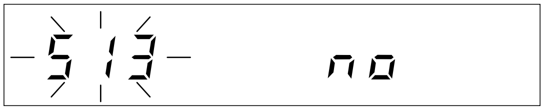
Voltage and A/D coversion value can be input

C”



Save OK

D”



Save NG

2-19-2. Changing the Voltage (2)

The battery before end/battery end and BP battery preset voltage can be changed according to the following procedure from the SYSTEM menu without the equipment listed in the previous section 2-19-1. However, the voltage can be changed more accurately using the procedure described in the previous section, it is recommended that the voltage be changed using that procedure.

Settable range: 11.0 to 12.5 V (Battery before end/battery end)
12.0 to 15.9 V (BP battery preset)
Setting at shipment: Battery before end voltage: 11.27 V
Battery end voltage: 10.95 V
BP battery preset voltage: 12.97 V
Standard values at shipment:
<Battery before end/battery end>

Voltage (V)	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0
Standard value	8d	92	97	9c	A1	A6	Ab	b0	b5	bA	bF

<BP battery preset>

Voltage (V)	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5
Standard value	4d	52	57	5c	61	67	6c	71	76	7b	80

✻ The standard value may differ according to the unit.
The above values are average values.
Switch setting: BACK TALLY = OFF

Setting

1. Turn on the power.

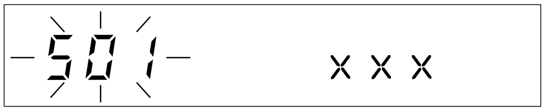
Setting the Battery Before End

1. Set the SYSTEM MENU (refer to section 2-25-2), and select the “Battery before end setting mode (Menu No. 501).” (Refer to Fig. E.)
2. Press the RESET (MENU SET) button to blink the voltage on the display window (Fig. F).
3. Press the SHIFT button while pressing the ADVANCE button.
4. Note down the voltage on the display window.
5. Change the value by pressing the ADVANCE button, and move to the next digit with the SHIFT button (Fig. G).
   For your reference, the voltage increases by about 0.02 V when the right digit value is increased by one step.
6. Press the RESET (MENU SET) button to write the set value in the EEPROM. “YES” will be displayed when the desired voltage is set (Fig. H). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. I). In this case, repeat steps 1 to 6.

Note:
- **The voltage value shown on the display window is for reference only.**
- **If the value in step 4 was not taken down, change the value using the values at shipment on the previous page as reference.**
- **If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET button, the data being set will be written.**

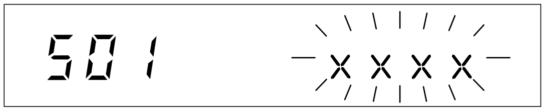
Display window (LCD)

E



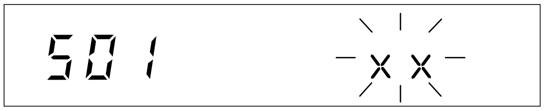
Blinking menu No. (When changed)

F



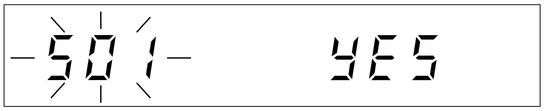
The voltage display blinking

G



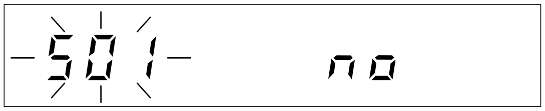
A/D conversion value blinking display

H



Save OK

I



Save NG

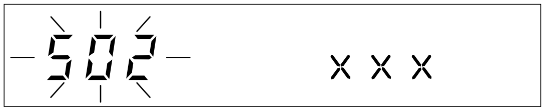
Setting the Battery End

1. Set the SYSTEM MENU (refer to section 2-25-2), and select the “Battery end setting mode (Menu No. 502).” (Refer to Fig. E’).
2. Press the RESET (MENU SET) button to blink the voltage on the display window (Fig. F’).
3. Press the SHIFT button while pressing the ADVANCE button.
4. Note down the voltage on the display window.
5. Change the value by pressing the ADVANCE button, and move to the next digit with the SHIFT button (Fig. G’).
   For your reference, the voltage increases by about 0.02 V when the right digit value is increased by one step.
6. Press the RESET (MENU SET) button to write the set value in the EEPROM. “YES” will be displayed when the desired voltage is set (Fig. H’). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. I’). In this case, repeat steps 1 to 6.

Note:
- **VTR operations stop according to the battery end voltage set. Set the voltage as 10.95 ±0.01 V.**
- **The voltage value shown on the display window is for reference.**
- **If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET button, the data being set will be written.**
- **If the value at step 4 was not taken down, change the value using the values at shipment on the previous page as reference.**

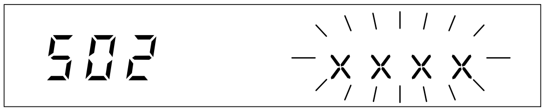
Display window (LCD)

E’



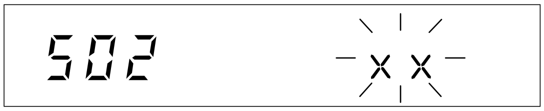
Blinking menu No. (When changed)

F’



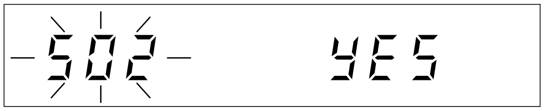
The voltage display blinking

G’



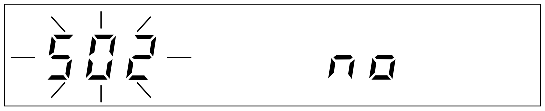
A/D conversion value blinking display

H’



Save OK

I’



Save NG

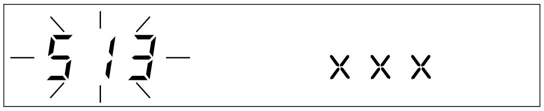
Setting the BP Battery Preset

1. Set The SYSTEM MENU (refer to section 2-25-2), and select the “BP battery preset mode (Menu No. 513).” (Refer to Fig. E”)
2. Press the RESET (MENU SET) button to blink the voltage on the display window (Fig. F”).
3. Press the SHIFT button while pressing the ADVANCE button.
4. Note down the voltage on the display window.
5. Change the value by pressing the ADVANCE button, and move to the next digit with the SHIFT button (Fig. G”).
   For your reference, the voltage increases by about 0.02 V when the right digit value is increased by one step.
6. Press the RESET (MENU SET) button to write the set value in the EEPROM. “YES” will be displayed when the desired voltage is set (Fig. H”). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. I”). In this case, repeat steps 1 to 6.

Note:
- **Set the voltage as 12.97 ±0.01 V.**
- **The voltage value shown on the display window is for reference.**
- **If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET button, the data being set will be written.**
- **If the value at step 4 was not taken down, change the value using the values at shipment on the previous page as reference.**

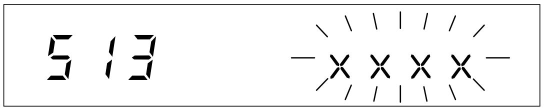
Display window (LCD)

E”



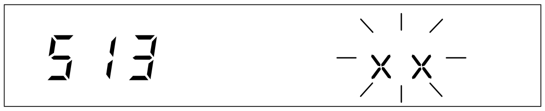
Blinking menu No. (When changed)

F”



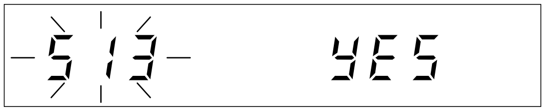
The voltage display blinking

G”



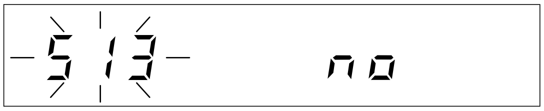
A/D conversion value blinking display

H”



Save OK

I”

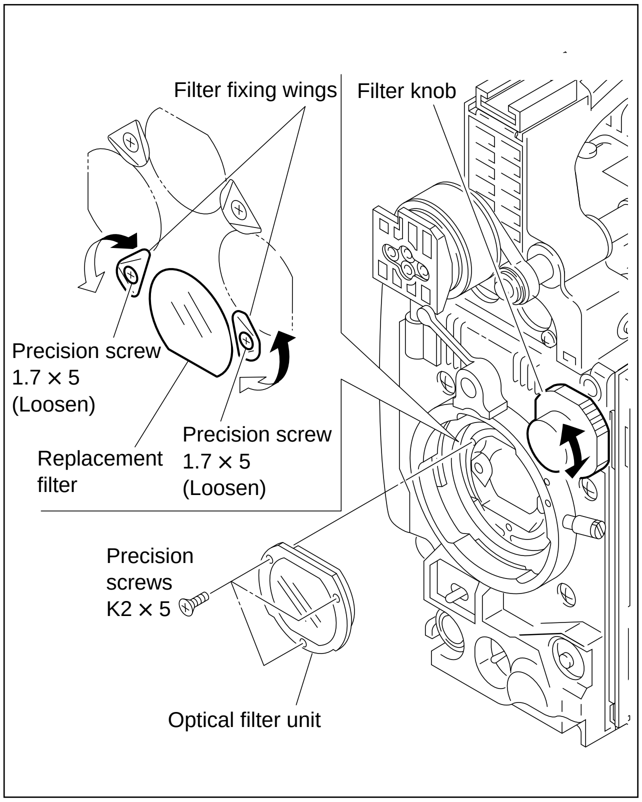


Save NG

2-20. REPLACING THE FILTER

Type of filter	Sony Part No.
3200/3000 K	3-708-372-01
5600 K	3-708-372-21
5600 K + 1/8ND	3-612-636-01
5600 K + 1/64ND	3-612-636-11
CROSS (sold separately) ∗When attaching the cross filter, put the crosshatching side outside.	3-200-281-01

1. Remove the three precision screws (K2 × 5) and remove the optical filter unit.
2. Turn the filter knob to meet the filter to be replaced.
3. Loosen the two precision screws (K1.7 × 5) which are fixing both sides of the filter to move the filter fixing wings as shown in Fig.


Filter fixing wings
Filter knob
Precision screw
1.7 × 5
(Loosen)
Precision screw
1.7 × 5
(Loosen)
Replacement
filter
Precision
screws
K2 × 5
Optical filter unit

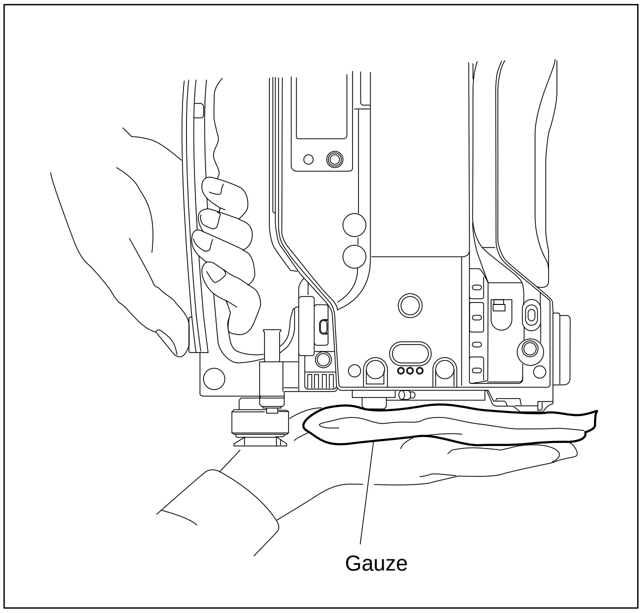
4. Take a grip on the handle, pan the camera downward, and take a filter by the other hand. Be sure to cover the hand with clean cloth, such as a gauze, when picking up the filter in order to keep the surface of filter cleanly.
5. Attach the replacement filter in the reverse order of above.

Point to notice when attaching the filter:

1. Place the filter on the filter disc by holding the circumference of the filter.
2. Fine adjust the position of filter with tweezers.

Note:

After the filter replacement, perform the filter indication setting Page 23 of menu. (Refer to section 2-26-3.)



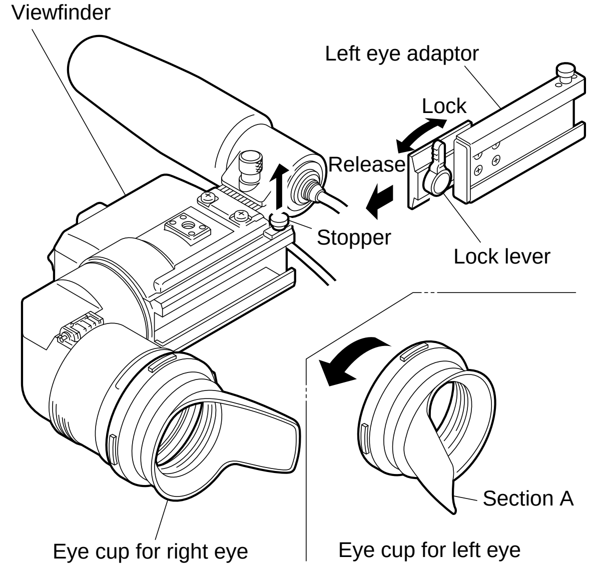
2-21. CHANGING THE VIEWFINDER CORRESPOND TO LEFT EYE

Part Required (sold separately)

Left eye adaptor (Sony Part No.: A-8267-181-A)

Attaching Procedures

1. Remove the viewfinder from the unit.
   (Refer to section 1-1. Digital Camcorder.)
2. Remove the eye cup, and put the eye cup (for left eye) facing the section A outside.
3. While pushing up the stopper of the viewfinder, attach the left eye adaptor. At this time, pull the lock lever to release locking.
4. Fix the left eye adaptor by pushing the lock lever vertically direction.
5. Attach the viewfinder to the unit.
   (Refer to section 1-1. Digital Camcorder.)

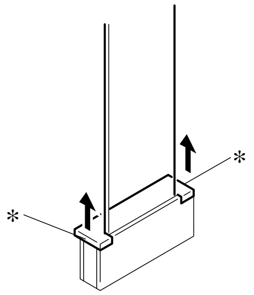

Viewfinder
Left eye adaptor
Lock
Release
Stopper
Lock lever
Section A
Eye cup for right eye
Eye cup for left eye

2-22. REPLACING THE FLAT CABLES, FLEXIBLE CARD WIRES/BOARDS

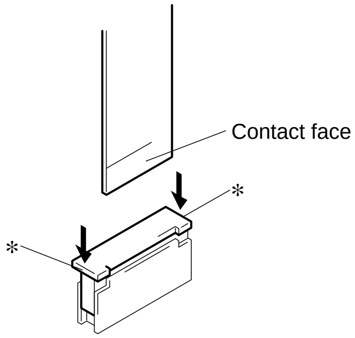
- Replace the flat cables, flexible card wires and boards as follows:
  Three types of connectors are also used.
- In order to keep the flexible card wire and board longer life, be very careful not to bent them when handling because they are remarkably sensitive.

Replacing the Vertical Type Connectors

- Removal
  Slide the ∗ marked section in the arrow direction, release the lock, and disconnect the flexible card wire.

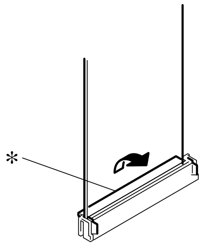


- Attachment
  Lift up the ∗ marked sections, and insert to the connector while paying attention to the contacting surface of the flexible card wire.
  After fully inserting to the line shown, push down the ∗ marked sections to lock the flexible card wire.

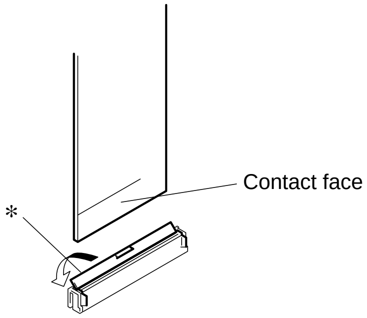


Note: **When lift up and down the ∗ marked sections, be sure to hold both ends of connector.**

- Removal
  Open the ∗ marked section in the arrow direction, release the lock, and disconnect the flexible card wire.

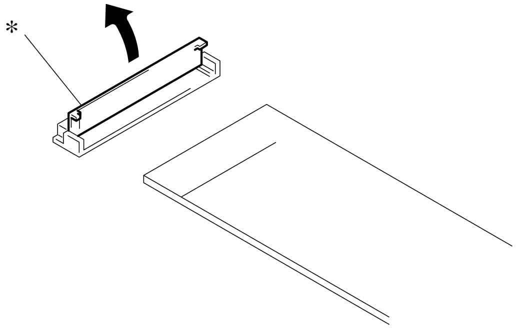


- Attachment
  Lift up the ∗ marked section, and insert to the connector while paying attention to the contacting surface of the flexible card wire.
  After fully inserting to the line shown, push down the ∗ marked section to lock the flexible card wire.

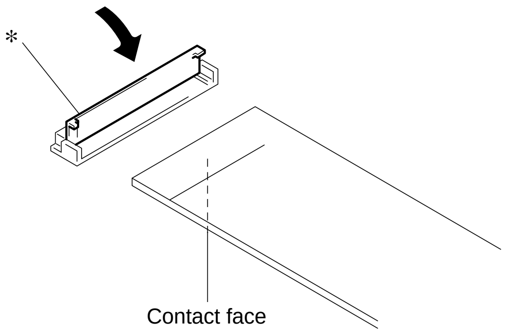


Replacing the Horizontal Type Connector

- Removal
  Open the ∗ marked section in the arrow direction, release the lock, and disconnect the flexible card wire.



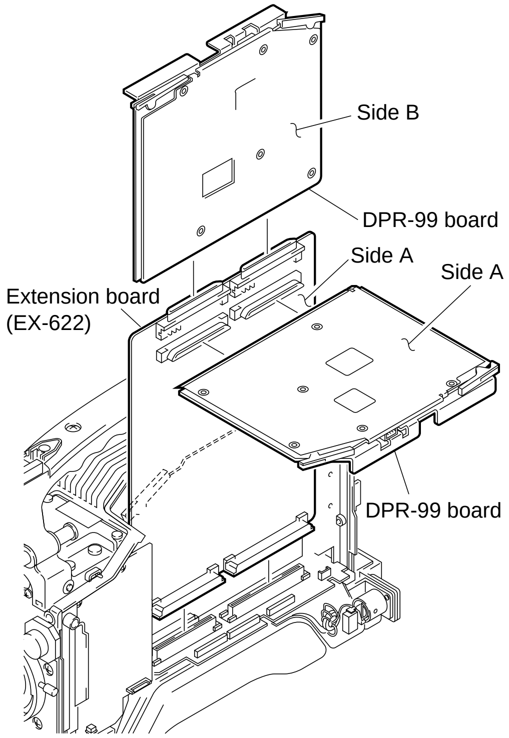
- Attachment
  Lift up the ∗ marked section, and insert to the connector while paying attention to the contacting surface of the flexible card wire.
  After fully inserting, close the ∗ marked section to lock the flexible card wire.


∗
Contact face

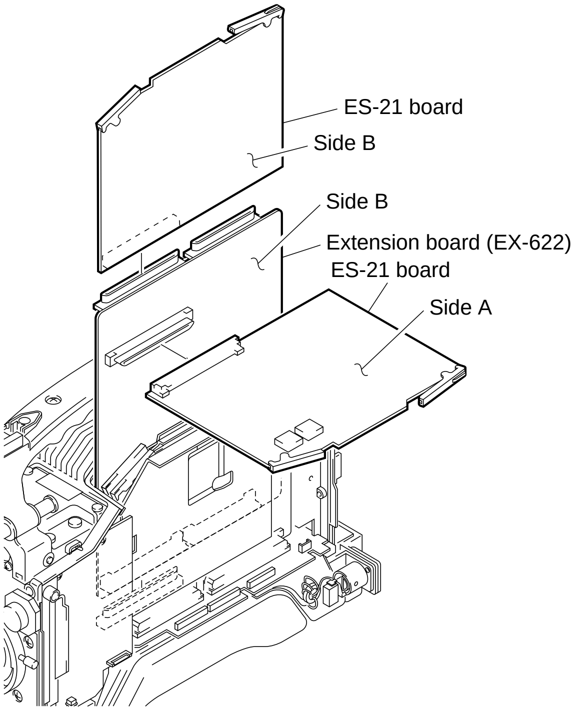
2-23. SERVICE TOOLS AND TEST FIXTURES

2-23-1. Attaching the Extension Board EX-622

- In case of the DPR-99 board.


Side B
DPR-99 board
Side A
Side A
Extension board
(EX-622)
DPR-99 board

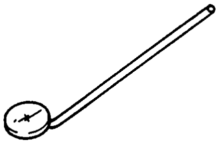
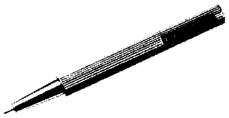
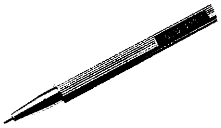
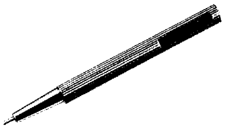
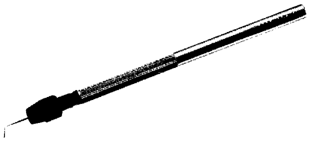
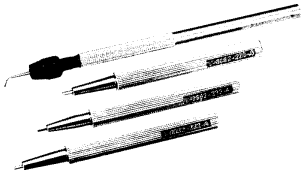
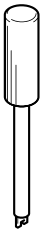
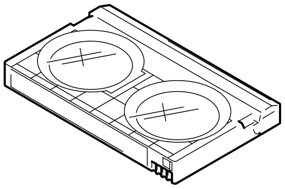
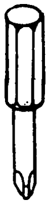
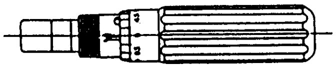
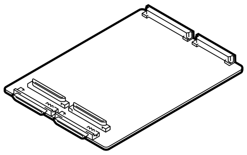
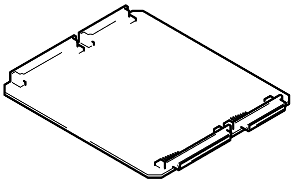
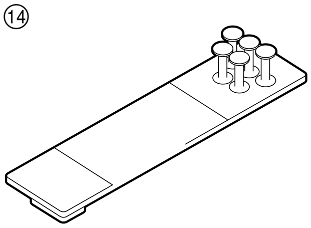
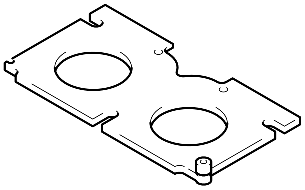
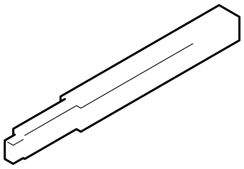
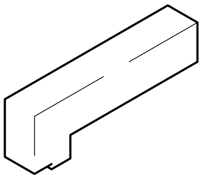
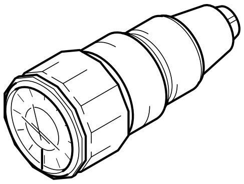
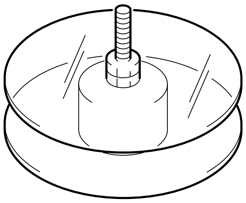
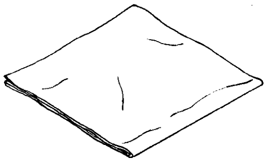
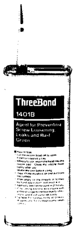
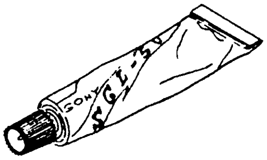
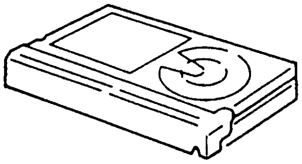
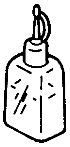
- In case of the ES-21 board.


ES-21 board
Side B
Side B
Extension board (EX-622)
ES-21 board
Side A

http://getMANUAL.com

2-23-2. Service Tools and Test Fixtures

Fig No.	Part No.	Name	Usage
1	J-6080-029-A	Small adjustment mirror	Video tracking adjustment
2	J-6082-231-A	Washer attaching tool (For 1.5)	Parts replacement
3	J-6082-232-A	Washer attaching tool (For 1.2)	Parts replacement
4	J-6082-233-A	Washer attaching tool (For 0.8)	Parts replacement
5	J-6082-234-A	Washer removing tool A	Parts replacement
6	J-6082-236-A	Washer attaching/removing kit	Parts replacement (Set of No. 2 to No. 5)
7	J-6082-362-A	Tape guide adjusting screwdriver	Tape guide height adjustment
8	J-6082-373-A	Torque cassette	FWD/REV rewinding torque adjustment, FWD back tension adjustment
9	J-6325-110-A	Torque screwdriver bit (For M1.4)	Parts replacement
10	J-6325-380-A	Torque screwdriver bit (For M2)	Parts replacement
11	J-6325-400-A	Torque screwdriver (3 kg)	Tightening screw
12	J-6276-320-A	Extension board, EX-622	ES-21/21P and DPR-99/99P boards adjustment
13	J-6441-740-A	Extension board, DJ-174	IPM-66 board adjustment
14	J-6442-350-A	RF extension board	RF system adjustment, tape path system adjustment
15	J-6442-410-A	Reference plate	Reel table height adjustment, tape guide height adjustment reference plate
16	J-6442-420-A	Guide gauge	Tape guide height adjustment
17	J-6442-430-A	Reel table height check gauge	Reel table height adjustment
18	J-6442-510-A	Torque gauge (90ATG)	FWD/REV rewinding torque adjustment
19	J-6442-520-A	Rewinding torque measuring attachment	FWD/REV rewinding torque adjustment
20	3-184-527-01	Cleaning cloth	Cleaning
21	7-432-114-11	Three bond 1401B	Screw-locking compound
22	7-662-010-04	Grease SGL-505 (20 g)	Parts replacement
23	8-967-999-02	Alignment tape XH2-1AST	Tape path system adjustment
24	8-967-999-21	Alignment tape XH5-1A	Video system adjustment (for DSR-300)
25	8-967-999-25	Alignment tape XH5-1AP	Video system adjustment (for DSR-300P)
26	9-919-573-01	Cleaning liquid	Cleaning

① 	② 	③ 	④ 
⑤ 	⑥ 	⑦ 	⑧ 
⑨⑩ 	⑪ 	⑫ 	⑬ 
⑭ 	⑮ 	⑯ 	⑰ 
⑱ 	⑲ 	⑳ 	㉑ 
㉒ 	㉓, ㉔, ㉕ 	㉖ 	

2-24. ERROR CODES

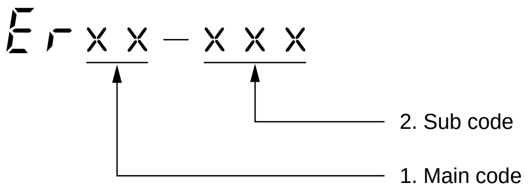
This unit is provided with a function to display error codes when error has been detected. When error has been detected during normal operation, error code is displayed on the LCD screen located in the side of the unit immediately.

- The sensor system's error display (main code 3X) goes off when the error is solved.
- The error display of the communication error between the microcomputer and peripheral devices goes off when the error is solved.
- The reel position motor error display (main mode 21) goes off when the next operation is in normal.
- Other errors remain displayed until the power is turned off.

When an error has been detected, protection operation is carried out according to the mode.

Errors are displayed as an error codes. The contents of the displayed error codes are as follows:

Error Code Display



1. Main Code

The causes of errors can be broadly classified as follows.

Er0x: Servo system, tape path system error
Er21: Reel position motor, reel transfer mechanism periphery error
Er3x: Sensor system error
Er91: Microcomputer and its periphery device error
Er92, Er93: Reference signal detection error
Er95: Communication error between the microcomputer and video or audio signal processing devices.

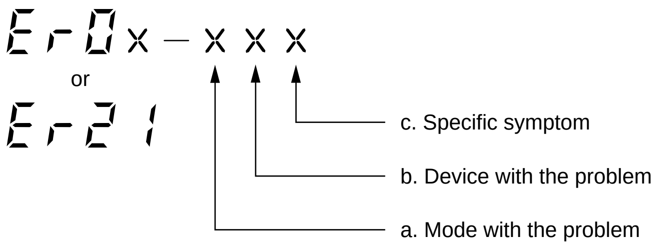
2. Sub Code

For items which require more information than that shown by the main code, the causes of errors are provided in more detail using sub codes.

If information is sufficient with the main code, sub code 000 is displayed.

2-24-1. Servo System, Tape Path System, Reel Mechanism, and Sensor System Errors

Error Code Display



a. Mode with the problem
  0: The mode cannot be identified, or there is no need to identify the mode
  1: CASSETTE IN
  2: THREADING
  5: SEARCH, F.FWD/REW
  6: PLAY/REC
  8: UNTHREADING

b. Device with the problem
  0: The device cannot be identified, or there is no need to identify the device
  2: Function cam motor/cam position sensor
  3: Drum motor/drum FG
  4: Capstan motor/capstan FG
  5: S side reel FG
  7: T side reel FG
  9: Both S/T side reel FGs or reel motor
  C: Reel position motor/reel position sensor

c. Specific symptoms
  0: There is no need to identify the symptom
  1: The operation did not complete within the designated time
  2: Detected speed error
  3: Detected tape slack
  4: Could not detect FG
  8: Detected abnormal current

Error Codes (Er02-Er33)

Error code	Details	Error detection method	Operations when errors occur	Test mode for checking/possible failure
Er02-098	Detected abnormal current of reel motor.	The mechanism control MICRO COM. could not detect S reel FG (SE-297 board/PH1) T reel FG (SE-297 board/PH2) output, or detected abnormal current of the reel motor. ∗MICRO COM. means the microcomputer.	When errors occur, SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Capstan test mode 610 Reel test mode 611 Possible causes • The tape is cut or jammed. • The reel torque cannot be adjusted • Faulty operations of the capstan motor or drive circuit (SV-164 board/IC300) • Faulty operations of the pinch roller block. • Faulty operations of the brake • Reel FG system circuit (SV-164 board/IC2, IC3, IC6) problems • Faulty operations of reel brake • Disconnection or faulty connection of flexible board (SE-297 board) • Problems or faulty disconnection of reel motor • Faulty operations of reel table, etc.
Er02-503	Detected tape slack during SEARCH, F.FWD/REW.			
Er02-554	Could not detect the S reel FG output during SEARCH, F.FWD/REW.			
Er02-574	Could not detect the T reel FG output during SEARCH, F.FWD/REW.			
Er02-594	Could not detect the S/T reel FG output during SEARCH, F.FWD/REW.			
Er02-603	Detected tape slack during PLAY/REC.			
Er02-654	Could not detect S reel FG output during PLAY/REC.			
Er02-674	Could not detect T reel FG output during PLAY/REC.			
Er02-694	Could not detect S/T reel FG output during PLAY/REC.			
Er02-874	Could not detect the T reel FG output during unthreading.		When errors occur, SHUT OFF operations are performed. EJECT mode cannot be accepted.	
Er07-042	Detected capstan speed problem.	The mechanism control MICRO COM. could not detect CAPSTAN FG output or detected speed problem.	When errors occur, SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Capstan test mode 610 Possible causes • Capstan free speed adjustment (capstan FG duty ratio adjustment) problems • Faulty operations of capstan motor or drive circuit (SV-164 board/IC300) • Capstan FG system circuit (SV-164 board/IC301, IC302) problems • Disconnection or faulty connection of flexible board connecting capstan motor
Er08-032	Cannot recover from drum speed problem.	The mechanism control MICRO COM. could not detect drum motor FG output or detected speed problem.	When errors occur, SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Drum test mode 612 Possible causes • Drum free speed adjustment (drum FG duty ratio adjustment) problems • Faulty operations of drum motor or drive circuit (SV-164 board/IC400) • Drum FG system circuit (SV-164 board/IC401, IC402) problems • Disconnection or faulty connection of flexible board connected to the drum

Error code	Details	Error detection method	Operations when errors occur	Test mode for checking/possible failure
Er09-021	Pinch roller ON/OFF did not complete within the set time.	The mechanism control MICRO COM. could not obtain an appropriate input signal from the cam position sensor or detected abnormal current of the function cam (LD) motor.	SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Function test cam mode 613 Possible causes ・Faulty operations of the reel brake ・Faulty operations of the function cam (LD) motor or drive circuit (SV-164 board/IC201) ・Incorrect gear position of the threading mechanism or function cam ・Cam mode sensor (SE-295 board/PH1 to PH4) or detection circuit (SV-164 board/Q803, Q804) problems ・Disconnection, faulty connection of the flexible board (SE-295 board) ・Disconnection of the harness
Er09-028	Detected abnormal current of the function cam (LD) motor.			
Er09-221	Threading did not complete within the set time.			
Er09-821	Unthreading did not complete within the set time.			
Er21-IC1	Reel position movement did not complete within the set time.	The mechanism control MICRO COM. could not obtain an appropriate input signal from the reel position sensor or detected abnormal current of the reel position motor.	The error is displayed until the cassette is inserted at the next time.	Possible causes ・Faulty operations of the reel position (shift) motor ・Faulty operations of the reel table movement mechanism ・Faulty detection of the reel position sensor (SE-297 board/PH3, PH4) or faulty detection circuit (SV-164 board/Q805) ・Disconnection or faulty connection of the flexible board (SE-297, MT-114)
Er31-000	Tape top could not be released.	The detection signal (detected tape top or tape end after SHORT FF or SHORT REW) was input to the mechanism control MICRO COM. from the tape top sensor or tape end sensor.	When errors occur, the STOP mode is set. Only the PLAY, FF, and EJECT modes are accepted. The error is displayed until it is corrected.	Possible causes ・Faulty tape top sensor (CC-68 board/Q1)/tape end sensor (SE-295 board/Q1) or detection circuit (SV-164 board/IC3) ・Disconnection or faulty connection of the flexible board (SE-295, MT-114, CC-68)
Er32-000	Tape end could not be released.		When errors occur, the STOP mode is set. Only the REW and EJECT modes are accepted. The error is displayed until it is corrected.	
Er33-000	Reel position sensor detected STANDARD and MINI at the same time.	Both the detections signals from the L reel position sensor and S reel position sensor were input to the mechanism control MICRO COM..	The error is displayed until it is corrected.	Possible causes ・Faulty L reel position sensor (SE-297 board/PH3)/S reel position sensor (SE-297 board/PH4) ・Disconnection or faulty connection of the flexible board ・Faulty detection circuit (SV-164 board/Q805)

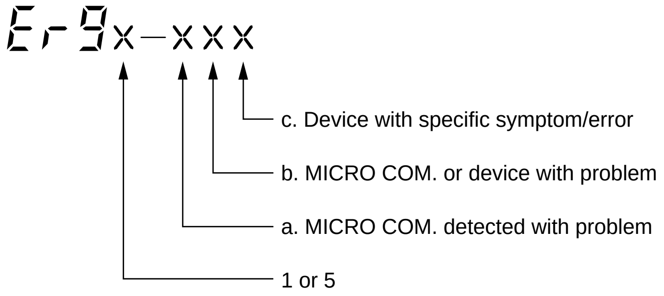
Note 1: For errors of the servo system and tape path system, basic operations can be checked in the test mode.

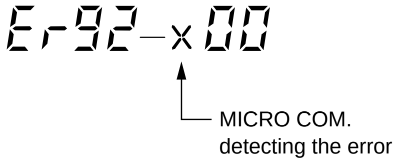
Note 2: The “Possible Cause” above are only for the main problem area.

Note 3: Regarding the test mode, refer to section “2-25. Menu (LCD).”

2-24-2. Communication Error of Microcomputer and Peripheral Devices

Error Code Display


Er9x–xxx
c. Device with specific symptom/error
b. MICRO COM. or device with problem
a. MICRO COM. detected with problem
1 or 5


Er92–x00
MICRO COM.
detecting the error

∗ MICRO COM. means microcomputer.

Note: **For Er91 and Er95, the device (EEPROM, IC) or the digital video signal bus from camera with the problem shows the error using sub codes b and c.**

a. MICRO COM. detected with problem
  1: System control (SY) MICRO COM. <FP-98 board/IC3>
  2: LCD and time code control (KY) MICRO COM. <FP-98 board/IC200>
  4: Mechanism control (SV) MICRO COM. <SV-164 board/IC500>
  7: Signal processor control (SP) MICRO COM. <DPR-99/99P board/IC651>
  F: Index picture control (IP) MICRO COM. <IPM-66 board/IC103>

b. MICRO COM. or device with problem
  1: System control (SY) MICRO COM.
  2: LCD and time code control (KY) MICRO COM.
  3: EEPROM
  4: Mechanism control (SV) MICRO COM.
  7: Signal processor control (SP) MICRO COM.
  8: Time code IC
  F: Index picture control (IP) MICRO COM.

c. Specific Symptom
  3: Parity error
  5: Communication not possible

Error Codes (Er91-Er95)

Error codes	Contents
Er91-123	Communication (parity) error of data from the LCD/time code control (KY) MICRO COM. to the system control (SY) MICRO COM..
Er91-125	Communication is impossible from the LCD/time code control (KY) MICRO COM. to the system control (SY) MICRO COM.. Clock (SCLK) is not input from the LCD/time code control (KY) MICRO COM.. A communication is not completed within a specified time.
Er91-131	Error of the EEPROM controlled from the system control MICRO COM. (SY). Impossible to read/write with the EEPROM (DPR-99/99P board/IC401).
Er91-13F	Read/write error from the system control (SY) MICRO COM. to the cassette memory. Error was detected when reading/writing from the cassette memory terminal (SE-298 board/MIC connector) to the cassette memory.
Er91-143	Communication (parity) error of data from the mechanism control (SV) MICRO COM. to the system control (SY) MICRO COM..
Er91-173	Communication (parity) error of data from the signal processor control (SP) MICRO COM. to the system control (SY) MICRO COM..
Er91-IF3	Communication (parity) error of data from the index picture (IP) MICRO COM. to the system control (SY) MICRO COM..
Er91-IF5	Communication is impossible between the system control (SY) MICRO COM. and the index picture (IP) MICRO COM.. Clock (SCLK) is not input from the index picture (IP) MICRO COM.. A communication is not completed within a specified time.
Er91-213	Communication (parity) error of data from the system control (SY) MICRO COM. to the LCD/time code control (KY) MICRO COM..
Er91-215	Communication is impossible from the system control (SY) MICRO COM. to the LCD/time code control (KY) MICRO COM.. A communication is not completed within a specified time.
Er91-232	Error of the EEPROM controlled from the LCD/time code control (KY) MICRO COM. (SY). Read/write with the EEPROM (FP-98 board/IC204) is impossible.
Er91-285	Communication error from the time code IC (FP-98 board/IC201) to the LCD/time code control (KY) MICRO COM..
Er91-413	Communication (parity) error of data from the system control (SY) MICRO COM. to the mechanism control (SV) MICRO COM..
Er91-415	Communication is impossible between the mechanism control (SV) MICRO COM. and the system control (SY) MICRO COM.. Clock (SCLK) is not input from the system control (SY) MICRO COM.. A communication is not completed within a specified time.
Er91-433	Error of the EEPROM controlled from the mechanism control (SV) MICRO COM.. Impossible to read/write with the EEPROM (HN-227 board/IC1).
Er91-434	Error of the EEPROM controlled from the mechanism control (SV) MICRO COM.. Impossible to read/write with the EEPROM (RP-91 board/IC770).
Er91-473	Communication (parity) error of data from the signal processor control (SP) MICRO COM. to the mechanism control (SV) MICRO COM..
Er91-475	Communication is impossible between the mechanism control (SV) MICRO COM. and the signal processor control (SP) MICRO COM.. Clock (SCLK) is not input from the signal processor control (SP) MICRO COM.. A communication is not completed within a specified time.
Er91-743	Communication (parity) error of data from the mechanism control (SV) MICRO COM. to the signal processor control (SP) MICRO COM..
Er91-F13	Communication (parity) error of data from the system control (SY) MICRO COM. to the index picture (IP) MICRO COM..

Error codes	Contents
Er92-100	The system control (SY) MICRO COM. cannot detect 1/2 VD signal (SV-164 board/IC500) or SVTRKD signal (SV-164 board/IC500) from the mechanism control (SV) MICRO COM..
Er92-200	The display/function control (KY) MICRO COM. cannot detect 1/2 VD signal.
Er92-F00	The index picture (IP) MICRO COM. cannot detect 1/2 VD signal or SVTRKD signal.
Er93-000	The mechanism control (SV) MICRO COM. cannot detect FLTD signal (DPR-99/99P board/IC611) from the DPR-99 board.
Er95-100	Communication (parity) error of data from the AUX IC (DPR-99/99P board/IC672) to the system control (SY) MICRO COM..
Er95-101	Communication (parity) error of data from the FSCONT IC (DPR-99/99P board/IC725) to the system control (SY) MICRO COM..
Er95-102	Communication (parity) error of data from the NFIL IC (DPR-99/99P board/IC405) to the system control (SY) MICRO COM..
Er95-120	CF pulse is not input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-123	Error of digital data (2) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-124	Error of digital data (3) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-125	Error of digital data (4) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-126	Error of digital data (5) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-127	Error of digital data (6) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-128	Error of digital data (7) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-129	Error of digital data (8) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-12A	Error of digital data (9) input from the digital camera to the NFL IC (DPR-99/99P board/IC405).
Er95-403	Communication (parity) error of data from the SFY IC (DPR-99/99P board/IC671) to the mechanism control (SV) MICRO COM..
Er95-405	Communication (parity) error of data from the CHCD IC (RP-91 board/IC774) to the mechanism control (SV) MICRO COM..
Er95-703	Communication (parity) error of data from the SFY IC (DPR-99/99P board/IC671) to the signal processor control (SP) MICRO COM..
Er95-704	Communication (parity) error of data from the AUDIO CORE (DPR-99/99P board/IC711) to the signal processor control (SP) MICRO COM..
Er95-F10	Communication (parity) error of data from the IP IC (IPM-66 board/IC101) to the index picture (IP) MICRO COM..
Er95-F11	Write processing error from the IP IC (IPM-66 board/IC101) to the memory (IPM-66 board/IC102).
Er95-F12	Write processing error from the frame memory (IPM-66 board/IC201 to IC214, IC301 to IC314) to a tape controlled by IP IC (IPM-66 board/IC101).

Operations when Error Occur

When a communication error and communication not possible (Error91 to Error95) occur, only an error display appears and the unit does not stop its operation.

Possible Failure

- Microprocessor or device
- Destination IC of the microprocessor
- Connection between board to board or connector

Note: Digital data (0) to digital data (12) shown Er95–120 through Er95–12A indicate numbers of the digital video data bus.
Error occurs when data is not input to the NFIL IC or is not read correctly.

2-25. MENU (LCD)

The display window (LCD) of this unit enables setting of the system functions of this unit, and VTR menus required for adjustments and maintenance.
The VTR menus are divided into the following three:

- USER MENU
  For user operations.
- SYSTEM MENU
  Used to set various system functions of this unit (This menu is not described in the instruction manual and therefore cannot be used by users.)
- MAINTENANCE MENU
  Used for performing maintenance including adjustments.

2-25-1. User Menu

Operating the USER MENU

1. Press the MENU button in the TC panel.
   (The time data display on the display window changes to the menu display.)

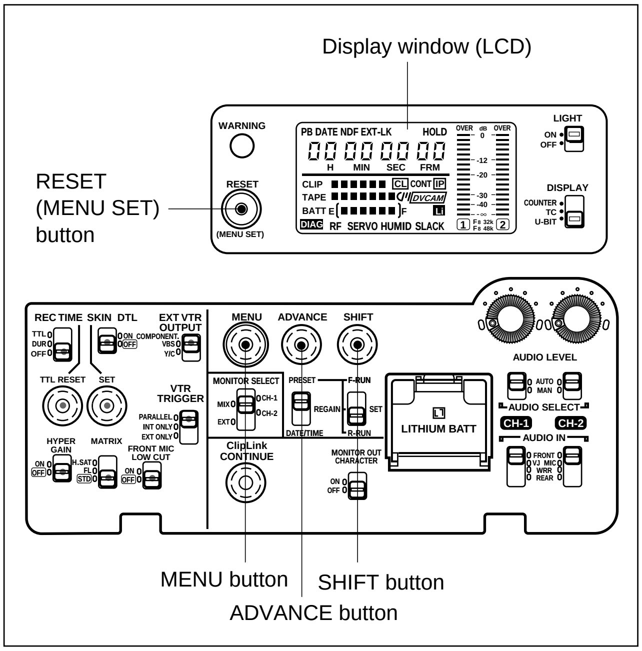
   The display window (LCD) displays "101 xxxx" and the USER MENU is set. (Fig. A.)

2. Press the ADVANCE button repeatedly until the Menu No. on the display window (LCD) becomes the desired Menu No.
   Pressing the ADVANCE button (+ button) will switch and display the menu in the following order.
   101 → 201 → 204 (DSR-300)/206 (DSR-300P)···215 (DSR-300)/214 (DSR-300P) → 101···.
3. To display the desired Menu No., press the SHIFT button. The current value set will blink, enabling the value to be changed. (Fig. B.)
4. To advance to the next digit, press the SHIFT button. To change the set value, press the ADVANCE button and display the desired value.
5. Press the RESET (MENU SET) button.
   The set value is registered, and the Menu No. blinks again. (Fig. C.)
6. Press the MENU button.
   The display window (LCD) returns to the state before the menu display.

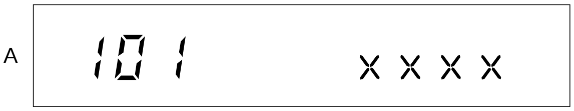
Note: If the MENU button is pressed during operations, the menu will be exited without registering changes made in the settings.

Basic Operations of Buttons

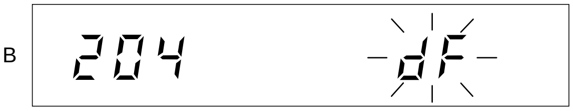
Button	Function
ADVANCE button	Changes the set value
	Menu No. + (Increase)
SHIFT button	Moves between displayed digits
	Menu No. – (Decrease)
RESET (MENU SET) button	Registers the set value (Returns to the menu selection mode) Start the adjustment
MENU button	Returns to the state before the menu mode Interrupt the adjustment


Display window (LCD)
RESET (MENU SET) button
WARNING
RESET
(MENU SET)
PB DATE NDF EXT-LK HOLD
H MIN SEC FRM
CLIP
TAPE
BATT
DIAG RF SERVO HUMID SLACK
LIGHT
ON
OFF
DISPLAY
COUNTER
TC
U-BIT
REC TIME
SKIN
DTL
EXT VTR OUTPUT
MENU
ADVANCE
SHIFT
TTL RESET
SET
VTR TRIGGER
MONITOR SELECT
PRESET
F-RUN
REGAIN
SET
DATE/TIME
R-RUN
LITHIUM BATT
AUDIO LEVEL
AUDIO SELECT
CH-1
CH-2
AUDIO IN
HYPER GAIN
MATRIX
FRONT MIC LOW CUT
ClipLink CONTINUE
MONITOR OUT CHARACTER
MENU button
SHIFT button
ADVANCE button

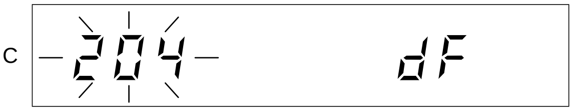
Display window (LCD)



Initial display



Blinks when the set value is changeable



Blinking menu No. (When changed)

http://getMANUAL.com

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW (LCD)	BUTTON USED	CONTENTS
101	—	101 1997	ADV. SHIFT	Sets the calendar and clock. Use the SHIFT button to move between the digits to be set. (Year → Month → Day → X0 Hours → 0X Hours → X0 Minutes → 0X Minutes → X0 Seconds → 0X Seconds → Year)
201	HOURS METER DISPLAY	201 xxxx	SHIFT	Displays how long the head drum was used, how long the tape was driven, and operating time in order. A: How long the head drum was used b: How long the tape was driven C: Operating time (When power is turned ON) ∗Each time Menu No. 201 is displayed and the SHIFT button is pressed, the display changes in the following order. (201 → A → b → C → 201)
204	FRAME MODE SELECTION For DSR-300 (UC)	204 dF $\boxed{\text{dF}}$/ndF	ADV.	Selects the time code generator drop frame mode and non-drop frame mode dF: Drop frame mode ndF: Non drop frame mode
206	BATTERY REMAINDER DISPLAY SELECTION	206 Std $\boxed{\text{AUto}}$/nI/LI/Antn	ADV.	Sets/switches the battery remainder display. LI: Lithium ion battery (BP-L40/L60/L60A/L90/L90A) Antn: Anton battery Std: Standard battery display (NP-1B, BP-90A)
207	STANDBY TIMER SETTING	207 08 01/03/05/$\boxed{\text{08}}$	ADV.	Sets the time for releasing the standby mode. Can be selected from one minute, 3 minutes, 5 minutes, and 8 minutes.
210	AUTO CHECK FUNCTION SETTING	210 oFF $\boxed{\text{oFF}}$/on	ADV.	Automatically inspects if there are any problems in the basic operations of this unit, connections between this unit and the camera before starting photographing. When oFF is displayed: When the RESET button is pressed, auto check is not performed, and instead, Menu No. is displayed again. When on is displayed: When the RESET button is pressed, auto check is started. After auto check completes, press the MENU button to exit from the menu mode.
211	CLIP LINK FUNCTION SETTING	211 on $\boxed{\text{on}}$/oFF	ADV.	Setting when the clip link photographing is not executed. on: Clip link function ON oFF: Clip link function OFF
212	AUDIO RECORDING MODE SETTING	212 48 $\boxed{\text{48}}$/32	ADV.	Sets audio signal recording mode 48: 48 kHz 2 channel mode 32: 32 kHz 4 channel mode (Records CH-1, CH-2 only)

- For details of the USER MENU, refer to the Instruction Manual or Section 1.
- Buttons used: RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW (LCD)	BUTTON USED	CONTENTS
213	AUDIO REFERENCE LEVEL SELECTION	213 -20 $\boxed{-20}$/−12	ADV.	Selects the audio reference level. −20: −20 dB (DSR-300) −18: −18 dB (DSR-300P) −12: −12 dB
214	AUDIO FADE SELECTION	214 oFF on/$\boxed{\text{oFF}}$	ADV.	Select the fade in/fade output mode at the starting and ending points of audio recording. on: Fades in/out. oFF: No fades in/out.
220	SETUP ADD SELECTION <For DSR-300 (UC)>	220 oFF on/$\boxed{\text{oFF}}$	ADV.	Set when adding setup to the video signal during playback.

- For details of the USER MENU, refer to the Instruction Manual or Section 1.
- Buttons used: RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

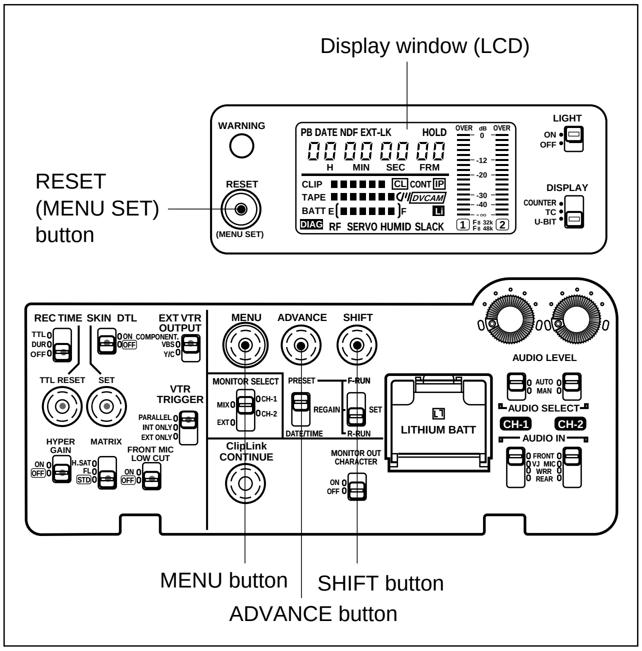
Basic Operations of Buttons

Button	Function
ADVANCE button	Changes the set value
	Menu No. + (Increase)
SHIFT button	Moves between displayed digits
	Menu No. − (Decrease)
RESET (MENU SET) button	Registers the set value (Returns to the menu selection mode)
MENU button	Returns to the state before the menu mode

2-25-2. System Menu

Operating the SYSTEM MENU

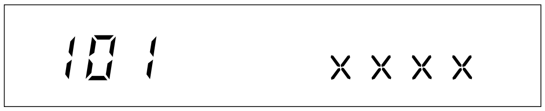
1. Press the MENU button while pressing the SHIFT button in the TC panel. “101 xxxx” is displayed on the display window (LCD). (Fig. A.)
   Release the SHIFT button while pressing the MENU button.


Display window (LCD)
RESET (MENU SET) button
WARNING
RESET
(MENU SET)
PB DATE NDF EXT-LK HOLD
H MIN SEC FRM
CLIP
TAPE
BATT
DIAG RF SERVO HUMID SLACK
LIGHT
ON
OFF
DISPLAY
COUNTER
TC
U-BIT
REC TIME SKIN DTL
EXT VTR OUTPUT
MENU
ADVANCE
SHIFT
AUDIO LEVEL
TTL RESET SET
VTR TRIGGER
MONITOR SELECT
PRESET
F-RUN
REGAIN
SET
R-RUN
DATE/TIME
LITHIUM BATT
AUDIO SELECT
CH-1
CH-2
AUDIO IN
HYPER GAIN
MATRIX
FRONT MIC LOW CUT
ClipLink CONTINUE
MONITOR OUT CHARACTER
MENU button
SHIFT button
ADVANCE button

2. After about 1 second, check that “600 oFF” is displayed, and release the MENU button. (Fig. B.)
3. Press the ADVANCE button or SHIFT button repeatedly until the Menu No. on the display window (LCD) becomes the desired Menu No..
   Pressing the ADVANCE button (+ button) will switch and display the menu in the following order.
   600 → 301 → 308 → 401 → 402···513→ 600···
   Pressing the SHIFT button (− button) will switch and display the menu in the following order.
   600 → 513 → 509 → 503···301→ 600···
4. Display the desired Menu No., press the RESET (MENU SET) button.
   The current value set will blink, enabling the value to be changed. (Fig. C.)
5. Press the ADVANCE button and display the desired value.
6. Press the RESET (MENU SET) button. The set value is registered. The Menu No. blinks again. (Fig. D.)
7. Press the MENU button.
   The display window (LCD) returns to the state before the menu display.

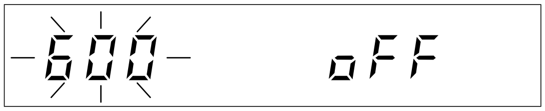
Display window (LCD)

A



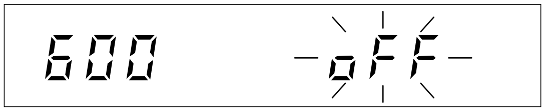
Initial display

B



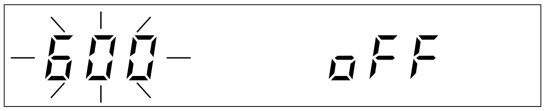
Blinking menu No. (When changed)

C



Blinks when the set value is changeable

D



Blinking menu No. (When changed) again

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW (LCD)	BUTTON USED	CONTENTS
301	CCZ MIC LEVEL SELECT	301 oFF on/$\boxed{\text{oFF}}$	ADV.	CCZ MIC LEVEL SELECT on: −60 dBu oFF: −20 dBu
308	TC PHASE CORRECTION ON/OFF SELECT	308 on $\boxed{\text{on}}$/oFF	ADV.	Selects whether to perform phase correction or not. on: TC bit 0 starts from Low. oFF: TC bit 0 start is undefined. Normally set to ON.
401	BACK TALLY MODE SELECT	401 oFF on/$\boxed{\text{oFF}}$	ADV.	Selects BACK TALLY mode. on: Real REC mode oFF: REC mode and WARNING display
402	HUMID MODE SELECT	402 oFF on/$\boxed{\text{oFF}}$	ADV.	on: Even if condensation occurs, REC operation is continued if VTR is set to REC mode. At other times, same as oFF. oFF: When condensation occurs, HUMID ALARM is displayed to protect the tape. VTR stops operating only for a certain period of time when set by HUMID TIMER. (Refer to 2-12 for details.)
403	ROM VERSION DISPLAY	403SYxxx	RESET	When the RESET button is pressed, the subject switches accordingly in the order KY → SY → SV → SP → IP → KY and the ROM version is displayed.
405	STANDBY OFF INHIBIT ON/OFF	405 oFF on/$\boxed{\text{oFF}}$	ADV.	Selects whether to perform STANDBY OFF operation or not. on: STANDBY OFF operation is prohibited. Therefore STANDBY OFF is not performed. oFF: STANDBY OFF is performed at the time set by the STANDBY TIMER.
406	PB TC OUT SELECT	406 oFF on/$\boxed{\text{oFF}}$	ADV.	Selects PB TC OUT. on: PB TC is output during playback. oFF: PB TC is not output. (Generator processed TC is output at all times.)
501	BATTERY BEFORE	501 xxx	ADV. SHIFT RESET	The battery before end (near end of battery life) voltage can be set within the 11.0 V to 12.5 V range. (Refer to 2-19 for the changing method.)
502	BATTERY END	502 xxx	ADV. SHIFT RESET	The battery end (end of battery life) can be set within the 11.0 V to 12.5 V range. (Refer to 2-19 for the changing method.)

Buttons used: RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

Note: Even if Menu No. 600 is "on," it will automatically go "oFF" when the power is turned OFF.

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW (LCD)	BUTTON USED	CONTENTS
503	CALENDAR DISPLAYS	503 X X X Std/UC/J/CE	ADV.	Display window (LCD) date display switching (TC mode switch 1/TC panel is the setting format of U-BIT during DATE/TIME) Std: According to internal DIP SW (NTSC is UC/J, PAL is CE only) J: Year/month/day UC: Month/day/year CE: Date/month/year
509	HUMID TIMER OFF	509 X X X	RESET	Releases HUMID TIMER When set to HUMID MODE OFF at factory setting Menu No. 402, HUMID ALARM is displayed to protect the tape, and VTR stops operations only for a certain period of time when set by the HUMID TIMER when condensation occurs. However, when condensation is removed manually, the HUMID TIMER can be released at the menu. (For details on how to release the HUMID TIMER, refer to 2-14.)
513	BP BATTERY PRESET	513 X X X	ADV. SHIFT RESET	The BP battery preset voltage can be set within the 12.0 to 15.9 V range. (Refer to 2-19. for how to replace.)
600	MAINTENANCE MENU ON/OFF SELECT	600 oFF on/oFF	ADV.	Sets the MAINTENANCE MENU (menu No. 601 to 755) ON/OFF. on: MAINTENANCE MENU are displayed. oFF: MAINTENANCE MENU are not displayed.

Buttons used: RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

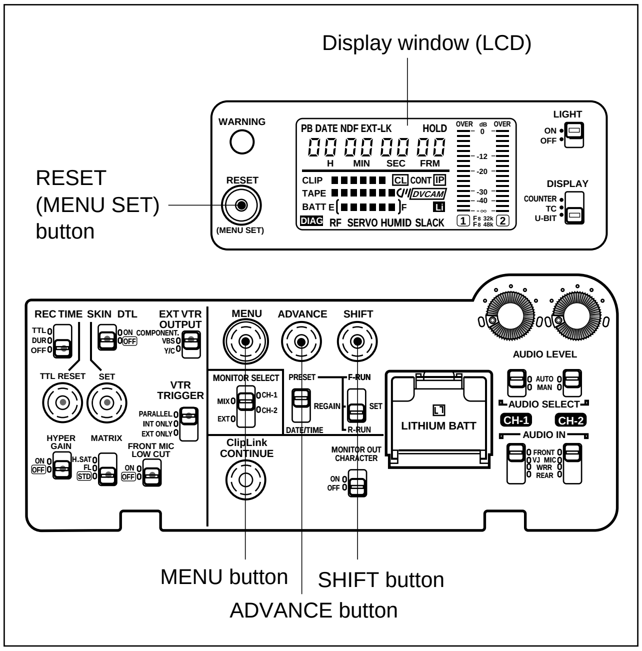
Basic Operations of Buttons

Button	Function
ADVANCE button	Changes the set value Menu No. + (Increase)
SHIFT button	Moves between displayed digits Menu No. − (Decrease)
RESET (MENU SET) button	Registers the set value (Returns to the menu selection mode) Start the adjustment
MENU button	Returns to the state before the menu mode Interrupt the adjustment

2-25-3. Maintenance Menu

Operating the MAINTENANCE MENU

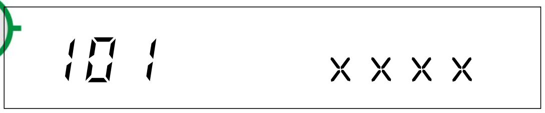
1. Press the MENU button while pressing the SHIFT button in the TC panel. “101 xxxx” is displayed on the display window (LCD). (Fig. A.)
   Release the SHIFT button while pressing the MENU button.


Display window (LCD)
RESET (MENU SET) button
WARNING
RESET
(MENU SET)
PB DATE NDF EXT-LK HOLD
H MIN SEC FRM
CLIP
TAPE
BATT
DIAG RF SERVO HUMID SLACK
LIGHT
ON
OFF
DISPLAY
COUNTER
TC
U-BIT
REC TIME
SKIN
DTL
EXT VTR OUTPUT
TTL RESET
SET
VTR TRIGGER
HYPER GAIN
MATRIX
FRONT MIC LOW CUT
MENU
ADVANCE
SHIFT
MONITOR SELECT
PRESET
F-RUN
REGAIN
SET
R-RUN
DATE/TIME
ClipLink CONTINUE
MONITOR OUT CHARACTER
LITHIUM BATT
AUDIO LEVEL
AUDIO SELECT
CH-1
CH-2
AUDIO IN
MENU button
SHIFT button
ADVANCE button

2. Check that “600 oFF” is displayed one second later, and release the MENU button.
3. Press the RESET (MENU SET) button with Menu No. 600 displayed. (“oFF” blinks.) (Fig. B.)
4. Press the ADVANCE button and select “on.” (Fig. C.)
5. Press the RESET button. (“600” blinks.) (Fig. D.)
   This enables the MAINTENANCE MENU (Menu No. 600 to 755) to be set.
   ∗ Even if Menu No. 600 is set to “on,” the SYSTEM MENU can be displayed and settings can be changed.
6. Press the ADVANCE button or SHIFT button repeatedly until the Menu No. on the display window (LCD) becomes the desired Menu No.
   Pressing the ADVANCE button (+ button) will switch and display the menu in the following order.
   600 → 601 → 603 → 604···513→ 600···.
   Pressing the SHIFT button (– button) will switch and display the menu in the following order.
   600 → 513 → 509 → 503···601→ 600···.
7. Press the RESET (MENU SET) button at the desired setting, and perform settings and adjustments at each menu.
8. Press the MENU button.
   The display window (LCD) returns to the state before the menu display.

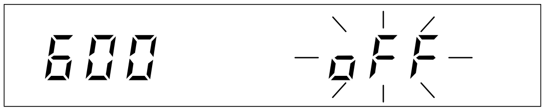
Display window (LCD)

A



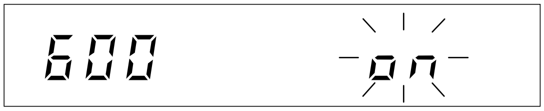
Initial display

B



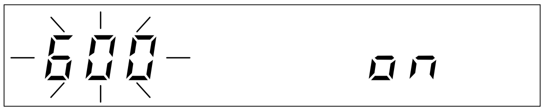
Before the set value is changed

C



After the set value is changed

D



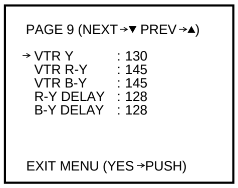
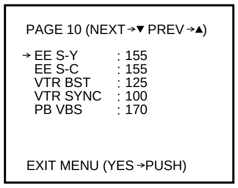
Blinks (when the set value is changed) at the MAINTENANCE MENU

Note: When the MENU button is pressed before results are displayed (during adjustments) for Menus No. 601, 605, 607, 608, and 609, "Abort" will be displayed and the adjustments will be stopped. This is displayed until normal operations can be performed (2 seconds at the shortest).

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW (LCD)	BUTTON USED	CONTENTS
601	CAPSTAN FG DUTY ADJUSTMENT	601 ---- (Adjusting)	RESET	When the RESET (MENU SET) buttons is pressed, capstan FG DUTY automatic adjustment is started. After the adjustment, data is written in the EEPROM, and the adjustment results are displayed on the display window (LCD) (YES or no). (For details, refer to section 8 VTR Block Electrical Alignment.)
603	SLACK MUTE SETTING	603 oFF on/$\boxed{\text{oFF}}$	ADV.	Sets slack detection mute ON/OFF. on: Slack mute ON oFF: Slack mute OFF Press the RESET (MENU SET) button, and set slack mute ON/OFF using the ADVANCE button. Note) This setting is effective only while the power is turned ON. When the power is turned OFF, it is automatically turned OFF.
604	TRACKING ADJUSTMENT CENTER ITI MODE SELECTION	604 oFF $\boxed{\text{oFF}}$/10/5/20	ADV.	Selects single frequency during recording/playback and recording in the center ITI mode. OFF when the normal recording/playback mode is set. 5: Single frequency is 5 MHz during recording 10: Single frequency is 10 MHz during recording 20: Single frequency is 20 MHz during recording Note) This setting is effective only while the power is turned ON. When the power is turned OFF, it is automatically turned OFF.
605	SWITCHING POSITION ADJUSTMENT	605 ---- (Adjusting)	RESET	Performs automatic adjustments of the switching position. (For details, refer to section 5 Tape Path Alignment.)
606	PLAYBACK MODE SELECTION	606 Aut $\boxed{\text{Aut}}$/10/15	ADV.	Selects playback mode. Aut: Data is detected and mode is automatically determined. 10: Fixed at SP mode. 15: Fixed at SSP mode.
607	REEL FG DUTY ADJUSTMENT	60x ---- (Adjusting)	RESET	Automatically adjusts the reel FG DUTY. YES: Adjustment OK no: Adjustment NG (For details, refer to section 8 VTR Block Electrical Alignment.)
608	REEL TORQUE ADJUSTMENT 1		STOP F.FWD REW EJECT	Adjusts the reel torque. YES: Ends after saving adjustment data. no: Adjustment NG and error cause (For details, refer to 4-38.)
609	REEL TORQUE ADJUSTMENT 2			Adjusts the reel torque. YES: Ends after saving adjustment data. no: Adjustment NG and error cause (For details, refer to 4-38.)

Buttons used: RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button. For basic operation of buttons, refer to the beginning of section 2-25. Menu (LCD).

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW (LCD)	BUTTON USED	CONTENTS
610	CAPSTAN TEST MODE	61x -- (During test mode)	RESET	Rotates the capstan at the fixed voltage.
611	REEL TEST MODE			Rotates the reel at the fixed voltage.
612	DRUM TEST MODE			Rotates the drum at the fixed voltage.
613	FUNCTION CAM TEST MODE		STOP EJECT	While the following buttons are pressed, performs threading/ unthreading. STOP button: Performs threading. EJECT button: Performs unthreading.
660+ Page9	VTR D/A Y LEVEL ADJ.	• DISPLAY WINDOW (LCD) 660 tAdJ (Adjusting) • VIEWFINDER SCREEN (MONITOR)  PAGE 9 (NEXT→▼ PREV→▲) → VTR Y : 130 VTR R-Y : 145 VTR B-Y : 145 R-Y DELAY : 128 B-Y DELAY : 128 EXIT MENU (YES→PUSH)	ADV. SHIFT RESET MENU DIAL	• For details, refer to section 8 VTR Block Electrical Alignment. • Regarding viewfinder screen (MONITOR) operation, refer to “Section 2-26. Menu (Viewfinder).”
	PB Y/B-Y DELAY ADJ.			
	PB Y/R-Y DELAY ADJ.			
	PB R-Y LEVEL ADJ.			
	PB B-Y LEVEL ADJ.			
660+ Page10	VTR PB Y SYNC LEVEL ADJ.	 PAGE 10 (NEXT→▼ PREV→▲) → EE S-Y : 155 EE S-C : 155 VTR BST : 125 VTR SYNC : 100 PB VBS : 170 EXIT MENU (YES→PUSH)		
	PB BURST LEVEL ADJ.			
	PB VBS LEVEL ADJ.			
	EE CHROMA LEVEL ADJ.			
	EE Y LEVEL ADJ.			
661+ page9	VTR D/A Y LEVEL ADJ.	• DISPLAY WINDOW (LCD) 661 CAdJ		Adjustment with internal COLOR BARS signal possible.
	PB R-Y LEVEL ADJ.			
	PB B-Y LEVEL ADJ.			
661+ page10	PB Y SYNC LEVEL ADJ.	• VIEWFINDER SCREEN (MONITOR)		
	PB BURST LEVEL ADJ.			
	VTR PB COMPOSITE LEVEL ADJ.			

Buttons used: RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button. For basic operation of buttons, refer to the beginning of section 2-25. Menu (LCD).

Note: • **During SEt indication: Initializing starts by pressing the RESET button.**
• **During ESC indication: Menu returns to the “Menu Item Select Mode” by pressing the RESET button without start up the initializing.**

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW (LCD)	BUTTON USED	CONTENTS
700	REC CURRENT ADJ.	700 x-xx (When changing data)	RESET	For details, refer to section 8 VTR Block Electrical Alignment.
701	PLL ADJ.	xxx xx (When changing data) xxx no (Save NG)		
702	AGC DELAY ADJ.			
704	AUTO EQ ADJ.			
750	VA EEPROM (SY) INITIALIZE	--- -- (When changing data) --- SEt (Starting initialization) --- ESC (Stopping initialization)	RESET	Initialize the SY EEPROM (IC401) on the DPR-99 board. If “no” is displayed when pressing the RESET button, initializing data is not saved correctly.
751	VA EEPROM (SP) INITIALIZE			Initialize the SP EEPROM (IC652) on the DPR-99 board. If “no” is displayed when pressing the RESET button, initializing data is not saved correctly.
752	KY EEPROM ECHO BACK DATA PRESET			Presetting results are displayed when pressing the RESET button. YES: Preset OK no: Preset NG
753	MECHANICAL CONTROL ADJ. ITEM INITIALIZE		ADV. RESET	Initialize the EEPROM (IC1) on the HN-227 board. Saved results of initializing data are displayed by pressing the RESET button. YES: Save OK noE0: Save NG or already initialized
754	ERROR HISTORY INITIALIZE			Initializing of error history can be performed. Saved results of initializing data are displayed by pressing the RESET button. YES: Save OK no: Save NG
755	RP ADJ. ITEM INITIALIZE			Initialize the EEPROM (IC770) on the RP-91 board. Saved results of initializing data are displayed by pressing the RESET button. YES: Save OK no: Save NG

Buttons used: RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button. For basic operation of buttons, refer to the beginning of section 2-25. Menu (LCD).

2-26. MENU (VIEWFINDER)

2-26-1. Operation of Service Mode

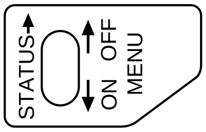
- **Service Mode**

  There are the three major menus, BASIC menu and ADVANCE menu for user, and SERVICE menu.
  The unit enters the service mode by setting the switch S811 (ADJ/OPE) on the FP-98 board to ADJ position.

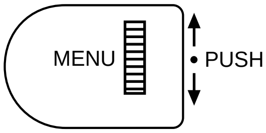
- **Switches**

  For details about switches, refer to section 1 Operating Instructions.

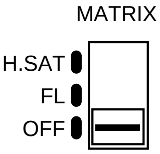
— MENU swich —



— MENU dial —



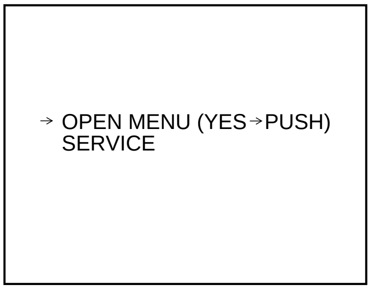
— MATRIX swich —



- **Menu Selection Screen**

  The following menu select screen is displayed by setting the switch S811 on the FP-98 board to “ADJ” position.

Menu selection screen



→ OPEN MENU (YES→PUSH)
SERVICE

- **Moving Cursor (→)**

  Push the MENU switch toward on. Or, turn the MENU dial during blinking the cursor.

- **Menu Selection**

  Turn the MENU dial during blinking the menu name. (By turning the MENU dial, menu name will be changed (SERVICE ⇔ BASIC ⇔ ADVANCE ⇔ SERVICE) cyclically.)
  By pressing the MENU dial during blinking the menu name, cursor blinks.

- **Open the SERVICE Menu (Proceed to SERVICE menu PAGE)**

  1. Move the cursor to menu name, Set the mode to SERVICE by turning the MENU dial.
  2. Push the MENU switch toward on, Move the cursor to OPEN MENU. Or, push the MENU dial (cursor blinks), and turn the MENU dial to move the cursor to OPEN MENU.
  3. Push the MENU dial.

  Normal menu operation can be performed after proceeding to PAGE of each menu.
  When each menu has been closed, it is returned to the Menu Selection screen.

- **Connection**

  Menu screen can be seen on the viewfinder screen or by the MONITOR OUT connector.

http://getMANUAL.com

2-26-2. Reset Items and Standard Setting Value

Pages	Items	Standard Setting
4	M.PKNEE1	155
	M.PKNEE2	190
	M.PKNEE3	255
	M.PKNEE4	0
	R.PKNEE	128
	B.PKNEE	128
11 (For DSR-300)	SET UP	OFF
	READ OUT	FD
	BLKG	20H
	MAT DEST	EBU
11 (For DSR-300P)	COMP LEV	525
	READ OUT	FD
12 EBU STD (For DSR-300)	R-G LEV	40
	R-B LEV	15
	G-R LEV	4
	G-B LEV	29
	B-R LEV	6
	B-G LEV	10
12 EBU H.SAT (For DSR-300)	R-G LEV	43
	R-B LEV	31
	G-R LEV	10
	G-B LEV	46
	B-R LEV	13
	B-G LEV	11
12 EBU FL (For DSR-300)	R-G LEV	56
	R-B LEV	15
	G-R LEV	11
	G-B LEV	27
	B-R LEV	11
	B-G LEV	1
12 SMPTE STD (For DSR-300)	R-G LEV	52
	R-B LEV	10
	G-R LEV	15
	G-B LEV	42
	B-R LEV	8
	B-G LEV	3
12 SMPTE H.SAT (For DSR-300)	R-G LEV	80
	R-B LEV	20
	G-R LEV	19
	G-B LEV	62
	B-R LEV	11
	B-G LEV	5
12 SMPTE FL (For DSR-300)	R-G LEV	94
	R-B LEV	−15
	G-R LEV	24
	G-B LEV	4
	B-R LEV	5
	B-G LEV	−9
12 STD (For DSR-300P)	R-G LEV	22
	R-B LEV	15
	G-R LEV	5
	G-B LEV	27
	B-R LEV	1
	B-G LEV	14
12 H.SAT (For DSR-300P)	R-G LEV	19
	R-B LEV	36
	G-R LEV	13
	G-B LEV	48
	B-R LEV	8
	B-G LEV	12
12 FL (For DSR-300P)	R-G LEV	20
	R-B LEV	20
	G-R LEV	15
	G-B LEV	29
	B-R LEV	8
	B-G LEV	1
13	TEST	OFF
	R-Y	ON
	B-Y	ON
16	GAMMA	ON
	MATRIX	ON
	DETAIL	ON
	APERTURE	ON
	FLARE	ON
14	R TITLE	75
	G TITLE	75
	B TITLE	75
	R EDGE	0
	G EDGE	0
	B EDGE	0

Pages	Items	Standard Setting
18	M.GAMMA	132
	R.GAMMA	±0
	B.GAMMA	±0
	M.BLACK	2083 (For DSR-300) 2075 (For DSR-300P)
19	WHT CLIP	±0
	M.KNEE P	±0
	M.KNEE S	±0
20	CRISP	8
	LEVEL DEP	52
	APERTURE	128
21	IRIS GAIN	128
	IRIS MODE	100
	IRIS SET	144
	LOW LIGHT	152 (For DSR-300) 160 (For DSR-300P)
23	FILTER1	3200/3000 K
	FILTER2	5600 + 1/8ND
	FILTER3	5600 K
	FILTER4	5600 + 1/64ND
24	DIAG ERROR RESET	—
	MEMORY BACKUP	—
25 - 27	DISP SELECT	1

2-26-3. Service Menu

• Page 1 RESET (For DSR-300)

```
→PAGE 1 (NEXT→▼ PREV→▲)



 RESET
      (YES→PUSH)
 DEST : J
 ROM VER : 1.01


 EXIT MENU (YES→PUSH)
```

All adjusting values with electronic volume control of each board can be restored to their standard setting values except for the values whose adjusting value differs from unit.
(Refer to section 2-26-2.)

✻ Move the cursor to “DEST” position, selects “UC,” move the cursor to “RESET,” and pressing the MENU dial.

(For DSR-300P)

```
→PAGE 1 (NEXT→▼ PREV→▲)



 RESET
      (YES→PUSH)

 ROM VER : 1.01


 EXIT MENU (YES→PUSH)
```

✻ Move the cursor to “RESET,” and pressing the MENU dial.

• Page 2 Shading Correction

```
PAGE 2 (NEXT→▼ PREV→▲)

  RW SHAD  :   128
  GW SHAD  :   128
  BW SHAD  :   128




EXIT MENU (YES→PUSH)
```

R W.SHAD/G W.SHAD/B W.SHAD
White shading correction of V
Standard (correcton 0) = 128

✻ Regarding adjustment procedure, refer to section 7-3-13.

• Page 3 Flare Adjustment

```
PAGE 3 (NEXT→▼ PREV→▲)



  R FLARE   :   0
  G FLARE   :   0
  B FLARE   :   0



EXIT MENU (YES→PUSH)
```

R FLARE/G FLARE/B FLARE
Flare correction
(0 = no correction)

✻ Regarding adjustment procedure, refer to section 7-3-14.

• Page 4 Pre Knee Setting

```
PAGE 4 (NEXT→▼ PREV→▲)

 M.PKNEE1 :  155
 M.PKNEE2 :  190
 M.PKNEE3 :  255
 M.PKNEE4 :    0
 R PKNEE  :  128
 B PKNEE  :  128


EXIT MENU (YES→PUSH)
```

		Standard Value
M.PKNEE1	Usual master pre knee point:	155
M.PKNEE2	Master pre knee point in gain is −3 dB:	190
M.PKNEE3	Master pre knee point in FM mode:	255
M.PKNEE4	Master pre knee point in Dual Pixel Readout is on:	0
P PKNEE	Fine adjust the R channel’s pre knee point:	128
B PKNEE	Fine adjust the B channel’s pre knee point:	128

• Page 5 Camera COMP Level Adjustment

```
PAGE 5 (NEXT→▼ PREV→▲)

 Y LEV     :   120
 R-Y LEV   :   120
 B-Y LEV   :   120
 SYNC LEV  :    80
 S-UP LEV  :   135


EXIT MENU (YES→PUSH)
```

Y LEV	Camera Y level adjustment
R-Y LEV	Camera R-Y level adjustment
B-Y LEV	Camera B-Y level adjustment
SYNC LEV	Camera SYNC level adjustment
S-UP LEV	Camera SETUP level adjustment (NTSC model only adjustable when setup is on.)

✻ Regarding adjustment procedure, refer to section 7-3-5.

• Page 6 Camera CLP Level Adjustment

```
PAGE 6 (NEXT→▼ PREV→▲)



 Y CLP     :  128
 R-Y CLP   :  120
 B-Y CLP   :  120


EXIT MENU (YES→PUSH)
```

Y CLP	* Camera Y CLP level adjustment
R-Y CLP	* Camera R-Y CLP level adjustment
B-Y CLP	* Camera B-Y CLP level adjustment

✻ Regarding adjustment procedure, refer to section 7-3-4.

• Page 7 Chroma/VF Adjustment

```
PAGE 7 (NEXT→▼ PREV→▲)

 R-Y C/B   :  110
 R-Y BST   :    0
 B-Y C/B   :  110
 B-Y BST   :   75
 VF SYNC   :  170
 VF BLKG   :   85
 VF Y      :    0

EXIT MENU (YES→PUSH)
```

R-Y C/B	*1 Camera R-Y carrier balance adjustment
R-Y BST	*2 Camera R-Y burst level adjustment
B-Y C/B	*1 Camera B-Y carrier balance adjustment
B-Y BST	*2 Camera B-Y burst level adjustment
VF SYNC	*3 Viewfinder video sync level adjustment
VF BLKG	*3 Viewfinder video blanking level adjustment
VF Y	Not in use

✻1 Regarding adjustment procedure, refer to section 7-3-6.
✻2 Regarding adjustment procedure, refer to section 7-3-7.
✻3 Regarding adjustment procedure, refer to section 7-3-11.

- **Page 8 Chroma SC Adjustment**

```
PAGE 8 (NEXT→▼ PREV→▲)


 SC FREQ   :  1980
 SC-H      :  1300



EXIT MENU (YES→PUSH)
```

SC FREQ	SC frequency adjustment (Refer to section 7-3-2.)
SC-H	SC-H adjustment (Refer to section 7-3-3.)

- **Page 9 VTR Output Adjustment 1**

```
PAGE 9 (NEXT→▼ PREV→▲)

→VTR Y       : 130
 VTR R-Y     : 145
 VTR B-Y     : 145
 R-Y DELAY   : 128
 B-Y DELAY   : 128



EXIT MENU (YES→PUSH)
```

VTR Y	VTR Y level adjustment (Refer to section 8-5-2.)
VTR R-Y	VTR R-Y level adjustment (Refer to section 8-5-5.)
VTR B-Y	VTR B-Y level adjustment (Refer to section 8-5-6.)
R-Y DELAY	VTR R-Y phase adjustment (Refer to section 8-5-4.)
B-Y DELAY	VTR B-Y phase adjustment (Refer to section 8-5-3.)

- **Page 10 VTR Output Adjustment 2**

```
PAGE 10 (NEXT→▼ PREV→▲)

→EE S-Y      : 155
 EE S-C      : 155
 VTR BST     : 125
 VTR SYNC    : 100
 PB VBS      : 170



EXIT MENU (YES→PUSH)
```

EE S-Y	VTR EE S-Y level adjustment (Refer to section 8-5-9.)
EE S-C	VTR EE S-C level adjustment (Refer to section 8-5-10.)
VTR BST	VTR burst level adjustment (Refer to section 8-5-7.)
VTR SYNC	VTR SYNC level adjustment (Refer to section 8-5-1.)
PB VBS	PB picture VBS level adjustment (Refer to section 8-5-8.)

• Page 11 Various Setting 1 (For DSR-300)

```
PAGE 11 (NEXT→▼ PREV→▲)


  SETUP      :  OFF
  READ OUT :  FD
  BLKG        :  20H
  MAT DEST :  EBU


EXIT MENU (YES→PUSH)
```

		Standard Setting
SETUP	ON/OFF control of setup	OFF
READ OUT	FD (Field): CCD switches in Field read mode FM (Frame): CCD switches in Frame read mode	FD
BLKG	Blanking width setting (19/20/21H)	20H
MAT DEST	Matrix destination setting (EBU/SMPTE) (Factory setting = EBU)	EBU

Note: In frame read out, higher vertical resolution can be obtained, however, image lag is increasing. If shutter function is on with frame read out, sensitivity drops in half against the normal.

(For DSR-300P)

```
PAGE 11 (NEXT→▼ PREV→▲)


→ COMP LEV :  525
  READ OUT :  FD



EXIT MENU (YES→PUSH)
```

		Standard Setting
COMP LEV	525/700 selection of color difference output (pin 26)	525
READ OUT	FD (Field): CCD switches in Field read mode FM (Frame): CCD switches in Frame read mode	FD

• Page 12 Matrix Center Value Setting

```
PAGE 12 (NEXT→▼ PREV→▲)

  MATRIX        STD
→ R-G  LEV   :  +40
  R-B  LEV   :  +15
  G-R  LEV   :  +4
  G-B  LEV   :  +29
  B-R  LEV   :  +6
  B-G  LEV   :  +10

EXIT MENU (YES→PUSH)
```

MATRIX	Matrix switch (STD/H.SAT/FL) position display
R-G LEV	R-G coefficient center value
R-B LEV	R-B coefficient center value
G-R LEV	G-R coefficient center value
G-B LEV	G-B coefficient center value
B-R LEV	B-R coefficient center value
B-G LEV	B-G coefficient center value

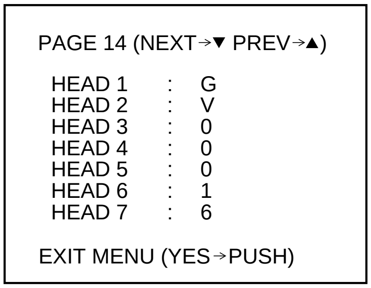
Note: Setting of current matrix coefficient (EBU/SMPTE) selected by the MATRIX switch (and MAT DEST on Page 11) is displayed on Page 12. The display show the current setting even when the MATRIX switch setting is changed.
To rewrite the selected matrix data, change the center value.
For standard setting, refer to section 2-26-2.

• Page 13 TEST MODE

```
PAGE 13 (NEXT→▼ PREV→▲)


  TEST         :  OFF
  R-Y          :  ON
  B-Y          :  ON



EXIT MENU (YES→PUSH)
```

TEST	TEST OFF: TEST SAW	
	TEST: 1	Displays 100 % TEST SAW.
	TEST: 2	Displays 226 % TEST SAW.
	TEST: 3	Displays 226 % TEST SAW in the lower side of screen.
R-Y	ON/OFF control of R-Y output	
B-Y	ON/OFF control of B-Y output	

• Page 14 HEAD BLOCK No. Information



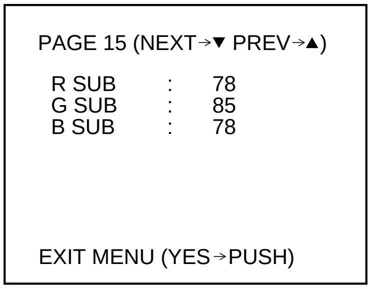
```
PAGE 14 (NEXT→▼ PREV→▲)

  HEAD 1    :   G
  HEAD 2    :   V
  HEAD 3    :   0
  HEAD 4    :   0
  HEAD 5    :   0
  HEAD 6    :   1
  HEAD 7    :   6

EXIT MENU (YES→PUSH)
```

HEAD1 - 7	Block number

Be sure to input the block number which is shown on the side of CCD unit after the replacement of TG-187 board or the EEPROM (IC3) on the TG-187 board.

Input method: Turn the MENU dial and enter the letter or number.

• Page 15 Sub-Voltage Information

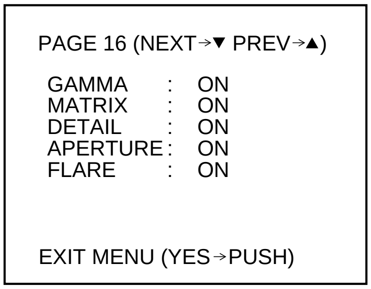


```
PAGE 15 (NEXT→▼ PREV→▲)

  R SUB     :    78
  G SUB     :    85
  B SUB     :    78

EXIT MENU (YES→PUSH)
```

R SUB	R channel sub-voltage setting
G SUB	G channel sub-voltage setting
B SUB	B channel sub-voltage setting

Note: **Values shown on the screen differ from CCD unit. Never change the value.**

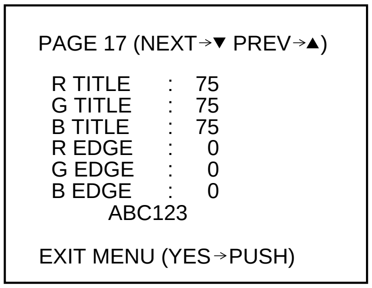
• Page 16 Various Setting 2



```
PAGE 16 (NEXT→▼ PREV→▲)

 GAMMA     :  ON
 MATRIX    :  ON
 DETAIL    :  ON
 APERTURE  :  ON
 FLARE     :  ON

EXIT MENU (YES→PUSH)
```

		Standard Setting
GAMMA	ON/OFF control of gamma	ON
MATRIX	ON/OFF control of matrix	ON
DETAIL	ON/OFF control of detail	ON
APERTURE	ON/OFF control of aperture	ON
FLARE	ON/OFF control of flare correction	ON

• Page 17 TITLE Color Setting

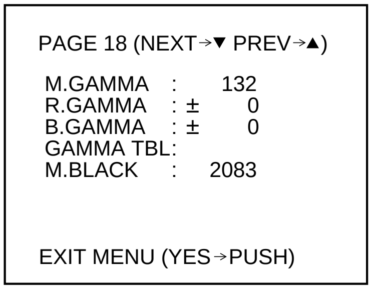


```
PAGE 17 (NEXT→▼ PREV→▲)

  R TITLE   :  75
  G TITLE   :  75
  B TITLE   :  75
  R EDGE    :   0
  G EDGE    :   0
  B EDGE    :   0
        ABC123

EXIT MENU (YES→PUSH)
```

When displaying the title in the video signal, title color can be set manually. Besides, edge color of title character can be set manually.

		Standard Setting
R TITLE	Title’s R level (0/25/50/75):	75
G TITLE	Title’s G level (0/25/50/75):	75
B TITLE	Title’s B level (0/25/50/75):	75
R EDGE	Title edge’s R level (0/25/50/75):	0
G EDGE	Title edge’s G level (0/25/50/75):	0
B EDGE	Title edge’s B level (0/25/50/75):	0
ABC123	Indication for checking actual title color	

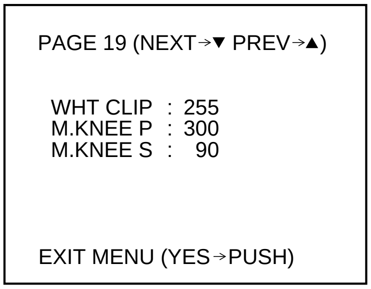
- **Page 18 Various Setting 3**



```
PAGE 18 (NEXT→▼ PREV→▲)

 M.GAMMA     :      132
 R.GAMMA     : ±      0
 B.GAMMA     : ±      0
 GAMMA TBL:
 M.BLACK     :     2083


EXIT MENU (YES→PUSH)
```

		Standard Setting
M.GAMMA	Standard value setting of master gamma:	132
R.GAMMA	R channel's gamma offset setting:	±0
B.GAMMA	B channel's gamma offset setting:	±0
GAMMA TBL	Selection of gamma table A/B:	B
M.BLACK	Standard value setting of master black: ✻ For DSR-300: 2083 For DSR-300P: 2075	*2083

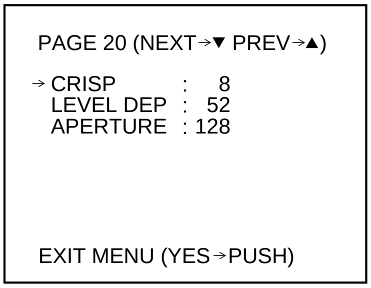
- **Page 19 KNEE Setting 3**



```
PAGE 19 (NEXT→▼ PREV→▲)


  WHT CLIP  : 255
  M.KNEE P  : 300
  M.KNEE S  :  90



EXIT MENU (YES→PUSH)
```

		Standard Setting
WHT CLIP	Standard value setting of white clip level: White clip level lowers by decreasing the standard setting value.	255
M.KNEE P	Standard value setting of master knee point:	300
M.KNEE S	Standard value setting of master knee slope:	90

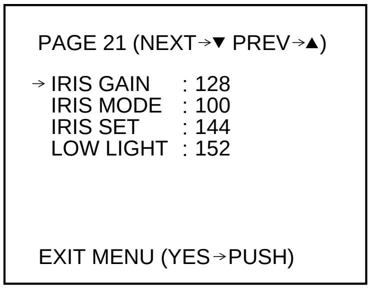
- **Page 20 DETAIL Related Setting**



```
PAGE 20 (NEXT→▼ PREV→▲)

→ CRISP        :   8
  LEVEL DEP    :  52
  APERTURE     : 128




EXIT MENU (YES→PUSH)
```

		Standard Setting
CRISP	Standard value setting of crisp level:	8
LEVEL DEP	Standard value setting of level depend level:	52
APERTURE	Standard value setting of aperture level:	128

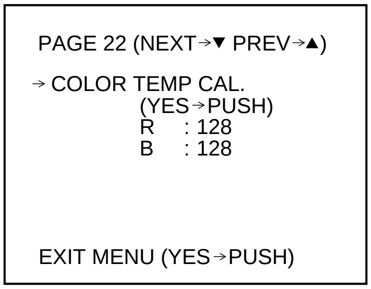
- **Page 21 IRIS Related Setting**



```
PAGE 21 (NEXT→▼ PREV→▲)

→ IRIS GAIN    : 128
  IRIS MODE    : 100
  IRIS SET     : 144
  LOW LIGHT    : 152



EXIT MENU (YES→PUSH)
```

		Standard Setting
IRIS GAIN	Setting of auto iris gain: Following speed of auto iris can be changed.	128
IRIS MODE	Setting of auto iris peak average ratio: Set the ratio of auto iris's peak and average values.	100
IRIS SET	Setting of the target value of auto iris:	144
LOW LIGHT	Setting of low light warning indication level: ✻ For DSR-300: 152 For DSR-300P: 160	*152

• Page 22 Color Temperature Calculation Reference Setting



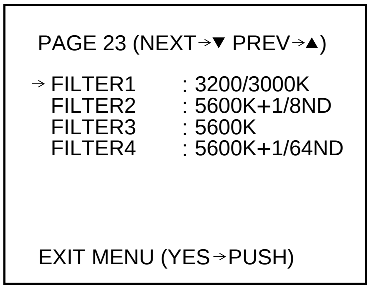
```
PAGE 22 (NEXT→▼ PREV→▲)

→ COLOR TEMP CAL.
           (YES→PUSH)
           R    : 128
           B    : 128



EXIT MENU (YES→PUSH)
```

COLOR TEMP CAL.	Writes the reference value of color temperature indication
R	The following write result of R channel's reference value: • Reference value setting • Color temperature indication
B	The following write result of B channel's reference value: • Reference value setting • Color temperature indication

Note: In COLOR TEMP CAL., it writes the color temperature calculation reference value during Auto White operation. Normally, it is not necessary to perform this adjustment.
If the color temperature value, which is indicated on the screen, differs from an actual value, perform CCD OUT level adjustment and etc. and to rewrite the reference value as follows:

1. **Shoots the pattern (color temperature = 3200 K).**
2. **Set the WHT BAL switch to A or B, and perform Auto White function.**
3. **Move the cursor on the COLOR TEMP position and push the MENU dial.**

• Page 23 FILTER Display Setting



```
PAGE 23 (NEXT→▼ PREV→▲)

→ FILTER1      : 3200/3000K
  FILTER2      : 5600K+1/8ND
  FILTER3      : 5600K
  FILTER4      : 5600K+1/64ND



EXIT MENU (YES→PUSH)
```

FILTER 1 to 4
Set the screen indication in accordance with a kind of filter attached.

Setting

1. Turn the MENU dial to move the cursor to FILTER No. on the screen.
2. Push the MENU dial.
3. Turn the MENU dial to display the indication to be set.
   By turning the MENU dial, indication will be changed as follows:
   3200/3000 K ⇔ CROSS ⇔ 5600 K ⇔ 5600 K + 1/4ND ⇔ 5600 K + 1/8ND ⇔ 5600 K + 1/16ND ⇔ 5600 K + 1/32ND ⇔ 5600 K + 1/64ND
4. To set the indication, push the MENU dial.

• Page 24 Self Diagnosis 1

```
  PAGE 24 (NEXT→▼ PREV→▲)


→ DIAG ERROR RESET
                 (YES→PUSH)

  MEMORY BACKUP
                 (YES→PUSH)


  EXIT MENU (YES→PUSH)
```

DIAG ERROR RESET

This item is used for erasing an error check results and a history of error items.

MEMORY BACKUP

This item is used when back up the EEPROMs data on the TG, DPR, and ES boards to EEPROM on the AT board. Backup is needed when the TG, DPR, or ES board has been replaced.

If there is a communication error between the TG, DPR, or ES board's EEPROM and microcomputer when the power is turned on, be sure to use the backed up data in EEPROM on the AT board.

TO BACK UP THE MEMORY

1. Turn the MENU dial to move the cursor to MEMORY BACKUP position.
2. Push the MENU dial.

Note: The "DIAG ERROR RESET" and "MEMORY BACKUP" will be carried out when the RESET in Page 1 is executed.

• Page 25 Self Diagnosis 2

```
  PAGE 25 (NEXT→▼ PREV→▲)

  ERROR DISP  1/3
→ DISP SELECT   :   1
    PP-PMPD   :  000H
    PR-PMPD1 :  000H
    PR-PMPD2 :  000H
    PR-G2       :  000H
    PR-R2       :  000H

  EXIT MENU (YES→PUSH)
```

DISP SELECT

This item is used for switching the contents of error item detail display.

1. The latest error check result is displayed.
2. The item which diagnosed as an error in the past by means of automatic self-diagnosis function is displayed.

PP-PMPD

This item shows a detail of the sync signal input check result and internal RAM check result of PP LSI (IC208 on the DPR board).

800H: PP LSI's internal RAM error

002H: HD signal input to PP LSI (pin 102 of IC208/DPR board) error

001H: VD signal input to PP LSI (pin 101 of IC208/DPR board) error

**Note: If there is a plural error, the sum of each error code is displayed as three digits hexadecimal notation.
(If there are errors in both HD and VD signals, 003H is displayed on the PP-PMPD.)**

PR-PMPD1

This item shows a detail of the sync signal input check result of PR LSI (IC214 on the DPR board).

002H: HD signal input to PR LSI (pin 74 of IC214/DPR board) error

001H: VD signal input to PR LSI (pin 73 of IC214/DPR board) error

PR-PMPD2

This item shows a detail of the internal RAM check result of PR LSI (IC214/DPR board).

800H: PR LSI's internal RAM error

PR-G2

Not in use

PR-R2

Not in use

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• Page 26 Self Diagnosis 3

```
 PAGE 26 (NEXT→▼ PREV→▲)

 ERROR DISP 2/3
→DISP SELECT   :   1
  PR-G1      :     000H
  PR-R1      :     000H
  PR-G0      :     000H
  PR-R0      :     000H
  PR-B1      :     000H

 EXIT MENU (YES→PUSH)
```

PR-G1

Not in use

PR-R1

Not in use

PR-G0

Not in use

PR-R0

Not in use

PR-B1

Not in use

• Page 27 Self Diagnosis 4

```
 PAGE 27 (NEXT→▼ PREV→▲)

 ERROR  DISP  3/3
→DISP SELECT  :  1
  RC- PMPD :     000H
  RC- CY     :     000H
  RC- CCR    :     000H
  RC- CCB    :     000H
  DSP COM. :     000H
  MEMORY   :     000H
 EXIT MENU (YES→PUSH)
```

RC-PMPD

This item shows a detail of sync signal input check result and internal RAM check result of RC LSI (IC308 on the DPR board).

800H: RC LSI’s internal RAM error
004H: HD signal input to RC LSI (pin 65 of IC308/DPR board) error
002H: VD signal input to RC LSI (pin 64 of IC308/DPR board) error
001H: GF signal input to RC LSI (pin 63 of IC308/DPR board) error

RC-CY

This item shows a detail of Y signal’s wiring check result between PR LSI (IC214/DPR board) and RC LSI (IC308/DPR board).

400H: 10th of Y signal (wiring between pin 94 of IC214 and pin 97 of IC308 on the DPR board) error
200H: 9th of Y signal (wiring between pin 93 of IC214 and pin 98 of IC308 on the DPR board) error
100H: 8th of Y signal (wiring between pin 92 of IC214 and pin 99 of IC308 on the DPR board) error
080H: 7th of Y signal (wiring between pin 91 of IC214 and pin 100 of IC308 on the DPR board) error
040H: 6th of Y signal (wiring between pin 90 of IC214 and pin 101 of IC308 on the DPR board) error
020H: 5th of Y signal (wiring between pin 89 of IC214 and pin 103 of IC308 on the DPR board) error
010H: 4th of Y signal (wiring between pin 88 of IC214 and pin 104 of IC308 on the DPR board) error
008H: 3rd of Y signal (wiring between pin 86 of IC214 and pin 105 of IC308 on the DPR board) error
004H: 2nd of Y signal (wiring between pin 85 of IC214 and pin 106 of IC308 on the DPR board) error
002H: 1st of Y signal (wiring between pin 84 of IC214 and pin 107 of IC308 on the DPR board) error
001H: 0th of Y signal (wiring between pin 83 of IC214 and pin 108 of IC308 on the DPR board) error

RC-CCR

This item shows a detail of CR signal's wiring check result between PR LSI (IC214/DPR board) and RC LSI (IC308/DPR board).

400H: 10th of CR signal (wiring between pin 108 of IC214 and pin 84 of IC308 on the DPR board) error
200H: 9th of CR signal (wiring between pin 107 of IC214 and pin 85 of IC308 on the DPR board) error
100H: 8th of CR signal (wiring between pin 106 of IC214 and pin 86 of IC308 on the DPR board) error
080H: 7th of CR signal (wiring between pin 104 of IC214 and pin 87 of IC308 on the DPR board) error
040H: 6th of CR signal (wiring between pin 103 of IC214 and pin 88 of IC308 on the DPR board) error
020H: 5th of CR signal (wiring between pin 102 of IC214 and pin 89 of IC308 on the DPR board) error
010H: 4th of CR signal (wiring between pin 101 of IC214 and pin 92 of IC308 on the DPR board) error
008H: 3rd of CR signal (wiring between pin 100 of IC214 and pin 93 of IC308 on the DPR board) error
004H: 2nd of CR signal (wiring between pin 99 of IC214 and pin 94 of IC308 on the DPR board) error
002H: 1st of CR signal (wiring between pin 98 of IC214 and pin 95 of IC308 on the DPR board) error
001H: 0th of CR signal (wiring between pin 95 of IC214 and pin 96 of IC308 on the DPR board) error

RC-CCB

This item shows a detail of CB signal's wiring check result between PR LSI (IC214/DPR board) and RC LSI (IC308/DPR board).

400H: 10th of CB signal (wiring between pin 121 of IC214 and pin 70 of IC308 on the DPR board) error
200H: 9th of CB signal (wiring between pin 120 of IC214 and pin 71 of IC308 on the DPR board) error
100H: 8th of CB signal (wiring between pin 119 of IC214 and pin 72 of IC308 on the DPR board) error
080H: 7th of CB signal (wiring between pin 118 of IC214 and pin 75 of IC308 on the DPR board) error
040H: 6th of CB signal (wiring between pin 117 of IC214 and pin 76 of IC308 on the DPR board) error
020H: 5th of CB signal (wiring between pin 116 of IC214 and pin 77 of IC308 on the DPR board) error
010H: 4th of CB signal (wiring between pin 115 of IC214 and pin 78 of IC308 on the DPR board) error
008H: 3rd of CB signal (wiring between pin 112 of IC214 and pin 79 of IC308 on the DPR board) error
004H: 2nd of CB signal (wiring between pin 111 of IC214 and pin 80 of IC308 on the DPR board) error
002H: 1st of CB signal (wiring between pin 110 of IC214 and pin 82 of IC308 on the DPR board) error
001H: 0th of CB signal (wiring between pin 109 of IC214 and pin 83 of IC308 on the DPR board) error

Note: If the sync signals input to PR LSI and RC LSI is having error, error is also detected on the wiring check between PR LSI and RC LSI.

DSP COM

This item shows a detail of the communication check result between each LSI and microcomputer.

004H: communication error between RC LSI and microcomputer
002H: communication error between PR LSI and microcomputer
001H: communication error between PP LSI and microcomputer

Note: The RC LSI performs the data communication to a microcomputer with the following six signals:

Pin 26: CS Pin 23: SDA1
Pin 25: SCK Pin 22: SDA2
Pin 24: SDA0 Pin 21: SDA3

The PR LSI performs the data communication to a microcomputer with the following six signals:

Pin 58: CS Pin 55: SDA1
Pin 57: SCK Pin 54: SDA2
Pin 56: SDA0 Pin 53: SDA3

The PP LSI performs the data communication to a microcomputer with the following six signals:

Pin 41: CS Pin 38: SDA1
Pin 40: SCK Pin 37: SDA2
Pin 39: SDA0 Pin 36: SDA3

If an error is detected during the data communication with LSI, other error item may be detected at the same time.

MEMORY

This item shows a detail of the communication check result between each EEPROM and microcomputer.

080H: communication error between EEPROM (IC103) on the ES boar and microcomputer
040H: communication error between EEPROM (IC303) on the DPR boar and microcomputer
020H: communication error between EEPROM (IC3) on the TG boar and microcomputer
010H: communication error between EEPROM (IC504) on the AT boar and microcomputer

Note: If there is an error in EEPROM on the TG, DPR, or ES boards, and if the back up data is used, or if there is an error in EEPROM on the AT board, and if the microcomputer’s standard value is used, indication of each EEPROM on the service menu shows a blank.

• Page 28 Current Status Display

```
PAGE 28 (NEXT→▼ PREV→▲)

COND IND     : OFF
POWER        : 13.0V
TIS          : 250h
R GAIN       : 800h
B GAIN       : 800h
IRIS POS     : 800h
KWC          : 800h

EXIT MENU (YES→PUSH)
```

Not in use

• Page 29 TG ROM Operation

```
PAGE 29 (NEXT→▼ PREV→▲)


TG ROM





EXIT MENU (YES→PUSH)
```

Not in use

2-27. AUTO CHECK FUNCTION

The error contents, measures and the possible abnormalities are as follows when the following codes are displayed as the result of Auto Check.
(Refer to the section 1 Operating Instructions for the operating procedure of the Auto Check Function.)

Displays, Error Contents, Measures or Possible Abnormalities

Displays	**Error contents, measures or possible abnormalities**
At good	The system can be used as it is when the recording status of video and audio is normal.
At ng-01	This is an error during normal operation. Exit the menu by pressing the MENU button. (To return to the status before displaying the VTR menu.) The error code is displayed. Analyze the cause of the error by referring to section “2-24. ERROR CODES” for the contents of the error.
At ng-02	When the RESET (MENU SET) button is kept pressed for about two seconds while “At ng-02” is displayed, the two digit error code appears. Analyze the cause of the error by referring to error code of the auto check code.
At ng-03	Exit the menu by pressing the MENU button. (To return to the status before displaying the VTR menu.) When any of the error codes from Er95-120 to Er95-12A is displayed, analyze the cause of the error by referring to section “2-24. ERROR CODES” for the contents of the error. If any error codes are not displayed, this is the condition that the sync signal is not fed to IC3 of the FP-98 board from a camera. If result of the Auto Check remains unchanged even though the Auto Check is performed again after confirming connection between VTR and camera, the following causes are possible. Causes (possible abnormalities) ・Circuit is shorted. ・Circuit is open.
At ng-04	It is detected that “A cassette is in the REC INHIBIT (SAVE) status.” If result of the Auto Check remains unchanged even though the Auto Check is performed again after confirming that the REC/SAVE switch of a cassette is not set in the SAVE position (if the switch is set in SAVE, set it to the REC position, or use another cassette (switch of which is set in REC.)) Causes (possible abnormalities) ・The REC INHIBIT detection switch of a VTR is defective. ・The circuit from the REC INHIBIT detection switch to IC502 pin-14 of the SV-164 board is defective. (Circuit is shorted or open, or poor contact of connector.)
At ng-05	It is detected that “Cassette is not present even though a cassette is inserted.” If result of the Auto Check remains unchanged even though the Auto Check is performed again after inserting another cassette, the following causes are possible. Causes (possible abnormalities) ・A cassette compartment is defective. ・Tape top end sensor, or LED (including prism) or its peripheral circuit is defective. (Circuit is shorted or open, or poor contact of connector.)
o-HAUL	It is detected that “Error rate is deteriorated (The readout error during playback of the recorded video/audio data has increased.)” The system can be used as it is when the recording status of video and audio is normal, however, the following causes are possible. Causes (possible abnormalities) ・Head is dirty. ・Tape path is poor. ・The RP-91 board is defective. ・Poor contact of the flexible card wires which are connected to the RP-91 board.

Auto Check Error Code

If “At ng-02” is displayed as the result of Auto Check and when the RESET (MENU SET) button is kept pressed for about two seconds while “At ng-02” is displayed, the two digit error code appears.

Displays, Error Contents, Measures or Possible Abnormalities

Code	Error contents, measures or possible abnormalities
00	It is in the status that the data other than the video and audio data which is recorded on a tape, cannot be read out. The signal circuit from the head of drum to IC of the DPR-99/99P board is abnormal. Causes (possible abnormalities) ・Poor contact of connectors ・Head clogging ・The RP-91 board is defective. ・The MB-753 board is defective. ・The DPR-99/DPR-99P board is defective.
other than 00	The error contents, measures and possible abnormalities are different depending upon the respective processes. (Refer to the followings.)

1. Cassette Out

When the Auto Check is performed, the cassette compartment is automatically opened (when a cassette is present, it is ejected), and the Auto Check is performed during the period from the time when user inserts a cassette until the cassette compartment is closed. When any abnormalities are detected, the error code is displayed.

Displays, Error Contents, Measures or Possible Abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment is locked.
13	The cassette compartment is not attached.
18	Tape top sensor does not respond.
19	Tape end sensor does not respond.
1a	Both tape top and tape end sensors do not respond.
1a	LEDs of the tape top end sensor are abnormal. ON/OFF voltage is abnormal.
20	The function cam does not enter the STBY mode.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
28	The detection voltage/current of the function cam motor does not return to 0.
38	The detection voltage/current of the drum motor does not return to 0.
48	The detection voltage/current of the capstan motor does not return to 0.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
c8	The detection voltage/current of the reel shift motor does not return to 0.

2. Cassette In

Insert a cassette into the cassette compartment and close the lid of the cassette compartment.
Check is performed during tape loading. When any abnormalities are detected, the error code is displayed.

Displays, Error Contents, Measures or Possible Abnormalities

Code	**Error contents, measures or possible abnormalities**
12	The cassette compartment lock is released.
1a	“Tape is present” is not detected.
1a	LEDs of the tape top end sensor are abnormal.
20	Positions of the function cam are not detected in the correct order.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
d0	The free running frequency of PLL on the RP-91 board is abnormal.

3. Record

Press the VTR button of the camera or the lens.
Check is performed during the test recording of about one minute. When any abnormalities are detected, the error code is displayed.

Displays, Error Contents, Measures or Possible Abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment lock is released.
18	Tape top is detected.
1a	LEDs of the tape top end sensor are abnormal.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
28	The operating voltage/current of the function cam motor is abnormal.
38	The operating voltage/current of the drum motor is abnormal.
40	The duty ratio of the capstan FG (A) and FG (B) are abnormal.
48	The operating voltage/current of the capstan motor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
98	Operating voltage/current of the reel motor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
c8	The operating voltage/current of the reel shift motor is abnormal.

4. Cue Up To Record Start Point

After tape is recorded for about one minute, tape is rewound up to the record start point.
Check is performed during the period from the time when recording is terminated until the tape is rewound up to the record start point. When any abnormalities are detected, the error code is displayed.

Displays, Error Contents, Measures or Possible Abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment lock is released.
19	Tape end is detected.
1a	LEDs of the tape top end sensor are abnormal.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
28	The operating voltage/current of the function cam motor is abnormal.
38	The operating voltage/current of the drum motor is abnormal.
48	The operating voltage/current of the capstan motor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
98	Operating voltage/current of the reel motor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
c8	The operating voltage/current of the reel shift motor is abnormal.

5. Playback

The recorded segment is played back.

Check is performed during playback. When any abnormalities are detected, the error code is displayed.

Displays, error contents, measures or possible abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment lock is released.
18	Tape top is detected.
1a	LEDs of the tape top end sensor are abnormal.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
28	The operating voltage/current of the function cam motor is abnormal.
30	The SSA (switching position) is incorrect.
38	The operating voltage/current of the drum motor is abnormal.
48	The operating voltage/current of the capstan motor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
98	Operating voltage/current of the reel motor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
c8	The operating voltage/current of the reel shift motor is abnormal.
e0	The system data that is read from IC774 on the RP-91 board, and the system data that is read from IC671 on the DPR-99/99P board are abnormal. (The system data: The recorded data that can be read when the servo is locked.)
e1	The system data (the system data is the recorded data that can be read when the servo is locked) is abnormal. (The respective data of ABS Track No., time code pack and bin pack must be free from errors.)

2-28. NOTES ON REPAIR PARTS

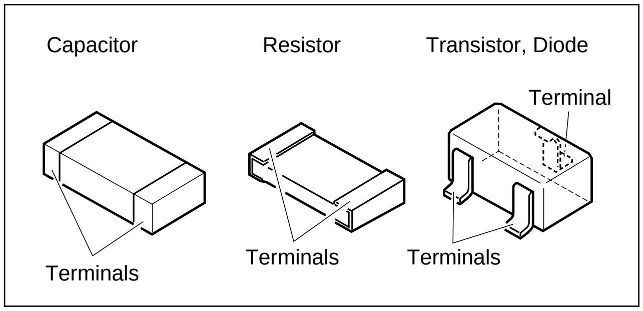
2-28-1. Replacement Procedure of Chip Parts

Tools Required

- Soldering iron: 20 W. If possible, use a soldering iron tip heat-controller set to 270 ±10 °C.
- Braided wire: Solder Taul or equivalent
  Sony Part No. 7-641-300-81
- Solder: 0.6 mm diameter is recommended.
- Tweezers

Soldering Conditions

- Soldering iron temperature: 270 ±10 °C
- Soldering time: Less than 2 seconds per pin



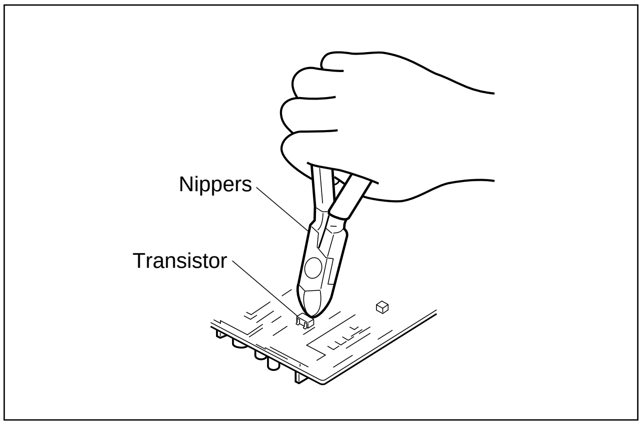
Replacement of Resistor and Capacitor

1. Place the soldering-iron tip onto the chip part and heat it up until the solder is melted. When the solder is melted, slide the chip part aside.
2. Make sure that there is pattern peeling, damage and/or bridge around the desoldering positions.
3. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
4. Place the new chip part at the desired position and solder both ends.

Note: Do not use chips parts that have been removed once.

Replacement of Transistors and Diodes

1. Cut the terminals of the chip part with nippers.
2. Remove the cut leads with soldering iron.
3, Make sure that there is no pattern peeling, damage and/ or bridge around the desoldering positions.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place the new chip part at the desired position and solder the terminals.



Replacement of ICs

1. Using the braided wire, remove the solder around the pins of the IC-chip to be removed.
2. While heating up the pins, remove the pins one by one using tweezers and equivalent.
3. Make sure that there is no pattern peeling, damage and/ or bridge around the desoldering parts.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place the new chip part at the desired position and solder the terminals.

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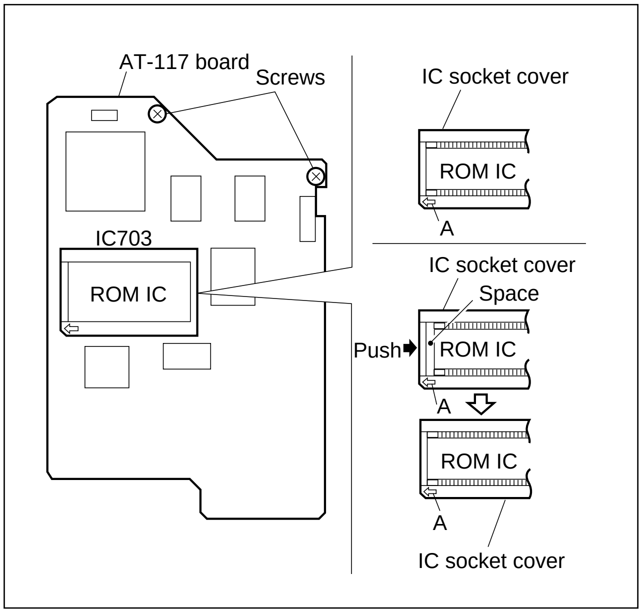
2-28-2. Note on Replacing the ROM

1. Replacing the ROM (IC703/AT-117 Board)

Note: When replacing the ROM, remove the two screws, open the AT-117 board, and remove the IC socket cover while pushing the back side of ROM.

① Remove the IC socket cover by pushing it in the arrow direction until clicking.
② Replace the former ROM by a new one.
③ Put the IC socket cover while keeping some space at the arrow A side.
④ While pushing the ROM, push the IC socket cover in reverse direction of arrow A until it clicks.


AT-117 board
Screws
IC703
ROM IC
IC socket cover
ROM IC
A
IC socket cover
Space
Push
ROM IC
A
ROM IC
A
IC socket cover

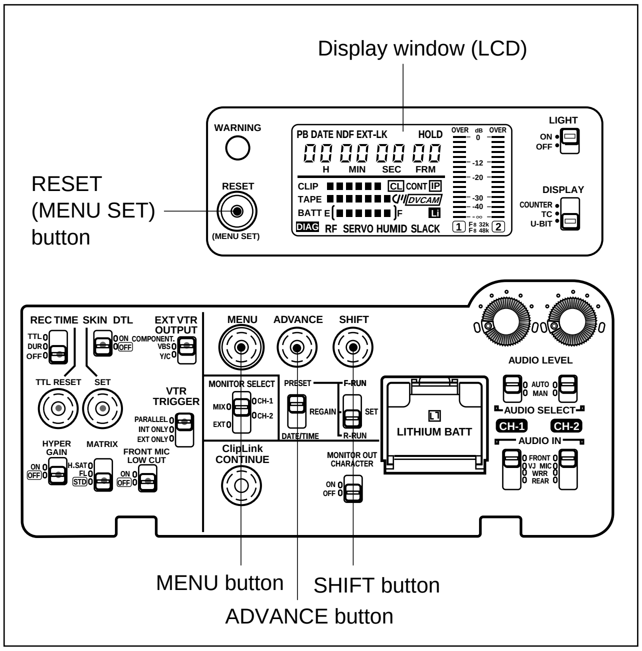
2. Replacing the EEPROM
After replacing the EEPROM, initialize it using the following menu.

EEPROM	MENU No.
SY EEPROM on the DPR-99/99P board (IC401)	750
SP EEPROM on the DPR-99/99P board (IC652)	751
EEPROM (IC1) on the HN-227 board	753
EEPROM (IC770) on the RP-91 board	755

- When the EEPROM (IC1) on the HN-227 board has been replaced or initialized, perform mechanical adjustments in the following procedures (Refer to each section for details).
  ① 8-2-1. Capstan FG-DUTY Adjustment
  ② 8-2-2. Reel FG-DUTY Adjustment
  ③ 4-38. Reel Table FWD/REV Winding Torque Check Adjustment
  ④ 5-8. Switching Position Adjustment

- When the EEPROM (IC770) on the RP-91 board has been replaced or initialized.
  Perform an adjustment in the order of menus No.700, 701, 702, and 704 (Refer to section 8-3 RF System Alignment for details).

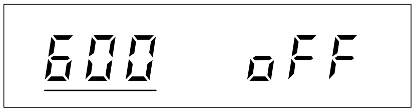
- After replacing the EEPROM on the FP-98 board, it is necessary to perform KY EEPROM ECHO BACK DATA PRESET using Menu No. 752.
  (For details, refer to 2-28-4.)


Display window (LCD)
RESET
(MENU SET)
button
WARNING
RESET
(MENU SET)
LIGHT
DISPLAY
MENU
ADVANCE
SHIFT
LITHIUM BATT
AUDIO LEVEL
MENU button
SHIFT button
ADVANCE button

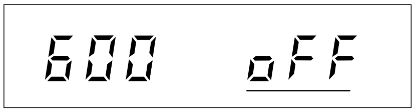
2-28-3. Initializing Procedure the EEPROM

1. Set the maintenance menu, and select Menu No. 75X.

(1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after pressing more than 1 second.
The display window (LCD) will display as follows:
(Characters underlined on the display window (LCD) in the following operations hereafter indicate that they are blinking.)

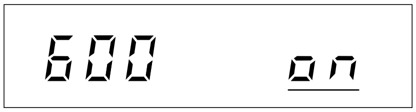


(2) Press the RESET (MENU SET) button once so that “oFF” blinks.
The display window (LCD) will display as follows:



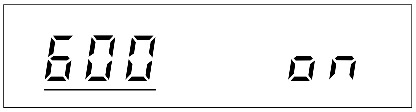
Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will blink alternately.

(3) Press the ADVANCE button once, and select “on.”
The display window (LCD) will display as follows:



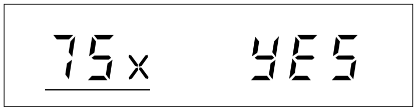
Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

(4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows:

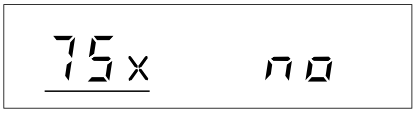


Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

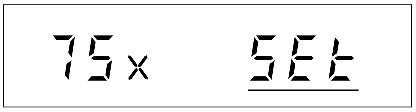
(5) Press the ADVANCE button several times to display Menu No. 75X.
The display window (LCD) will display as follows:



If the following is displayed, it indicates that the data when the power was turned on the last time can not be used. Press the MENU button to exit the maintenance menu, turn off the power supply and replace each EEPROM with those attached to the old boards.

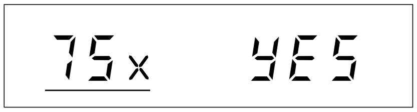


2. Press the RESET (MENU SET) button.
Check that the display window (LCD) will display as follows:



Each time the ADVANCE button is pressed, “SEt” and “ESC” will blink alternately.
To cancel, press the RESET (MENU SET) when “ESC” is displayed.

3. Press the RESET (MENU SET) button once.
Check that the display window (LCD) displays as follows:



If “no” is displayed on the display window (LCD), exit Menu No. 75X once, and perform the above procedure again. If the display does not change, check if the peripheral circuits of EEPROM of the each boards are abnormal, and replace with the EEPROM attached to the old board.

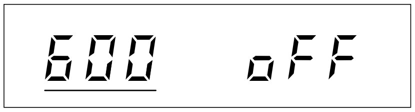
4. Press the MENU button to exit the maintenance menu.
The display window (LCD) will return to the state before the maintenance menu was displayed.

2-28-4. KY EEPROM Echo Back Data Preset Procedure

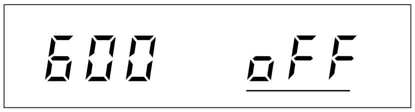
Note:
- **Because data may be lost when replacing the board and EEPROM, note down following menu No. settings before performing the replacement.**
  (Menus which should be noted down.)
  No. 201, 204, 206, 207, 211 to 214, 220, 308, 401, 402, 405, 406, 501 to 503 and 513
  (However, the hours meter cannot be reset.)
  For details of the menus, refer to 2-25. Menu.
- **Be sure to preset this data after replacing the FP-98 board and EEPROM (IC204) on the FP-98 board.**

1. Set the maintenance menu, and select Menu No. 752.

(1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after pressing more than 1 second.
The display window (LCD) will display as follows.
(Characters underlined on the display window (LCD) in the description of operations hereafter indicate that they are blinking.)

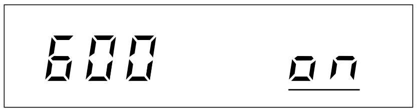


(2) Press the RESET (MENU SET) button once so that “oFF” blinks.
The display window (LCD) will display as follows.



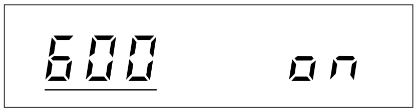
Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will blink alternately.

(3) Press the ADVANCE button once, and select “on.”
The display window (LCD) will display as follows.



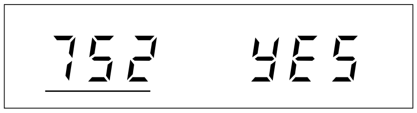
Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

(4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows.

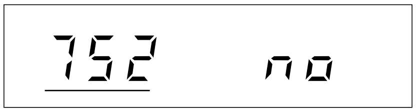


Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

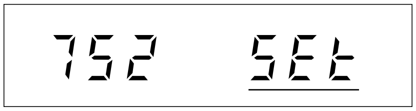
(5) Press the ADVANCE button several times and display Menu No. 752.
The display window (LCD) will display as follows.



If the display window (LCD) displays as follows, it indicates that the data the last time the power was turned on cannot be used properly. Therefore, press the MENU button to exit the maintenance menu, turn OFF the power and replace the EEPROM (IC204) with that attached to the old board.)
After replacing the EEPROM, perform 2-19. Changing the Battery Before End/Battery End/BP Battery Preset Voltage.)



2. Press the RESET (MENU SET) button.
Check that the display window (LCD) displays as follows.



Each time the ADVANCE button is pressed, “SEt” and “ESC” will blink alternately.
This mode can be canceled by pressing the RESET (MENU SET) button while “ESC” is displayed.

3. Press the RESET (MENU SET) button once.
   Check that the display window (LCD) displays as follows.

   ```
   752    YES
   ```

   If “no” is displayed on the display window (LCD), exit Menu No. 752 once, and perform the above procedure again. If the dishplay does not change, check if the peripheral circuits of EEPROM (IC204) of the FP-98 board are abnormal, and replace with the EEPROM attached to the old board.

4. Press the MENU button to exit the maintenance menu.
   The display window (LCD) will return to the state before the maintenance menu was displayed.

SECTION 3
PERIODIC MAINTENANCE AND INSPECTION

3-1. MAINTENANCE TIME TABLE

The times in the tables, indicating when parts are to be replaced, are not time guarantee for parts. Use these times as references for drawing up maintenance and inspection schedules for extending the life of the unit and tape use.
The time to replace parts differs according to the environments and conditions in which the unit is being used.

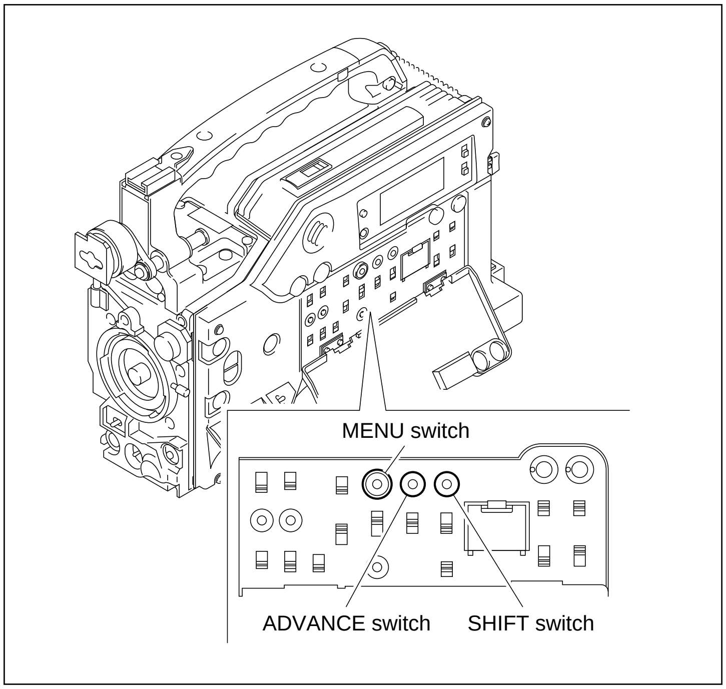
☆: Replace ◇: Check (Adjustment) ○: Clean

Maintenance Parts			**Hours Meter**	**Maintenance Time (H)**			
Item	**Part No.**	**Name**	**Display Mode**	**1500**	**3000**	**4500**	**6000**
Drum Assembly	A-7044-005-	DEH-03A-R	A	☆	☆	☆	☆
Drive Block							
LD Motor	A-8311-086-	LD Motor Block Assembly	A	◇	◇	◇	◇
Reel Motor	A-8311-088-	Shift Motor Assembly	A	—	◇	—	◇
Tension Regulator Band	X-3678-777-	TR Band Assembly	A	☆	☆	☆	☆
T Sub Reel	X-3678-885-	Sub Reel Gear (T) Assembly	A	☆	☆	☆	☆
S Sub Reel	X-3678-886-	Sub Reel Gear (S) Assembly	A	☆	☆	☆	☆
Idler Gear	X-3678-884-	Idler Gear Assembly	A	—	☆	—	☆
Capstan Motor	8-835-530-	DC Motor (SCD12A/J-N)	A	—	◇	—	◇
Brake Block							
T Hard Brake	A-8278-432-	Hard Brake Arm (T) Assembly	A	☆	☆	☆	☆
S Hard Brake	A-8278-433-	Hard Brake Arm (S) Assembly	A	☆	☆	☆	☆
T Soft Brake	X3678-869-	Soft Brake Arm (T) Assembly	A	☆	☆	☆	☆
TL Soft Brake	X3678-870-	Soft Brake (TL) Assembly	A	☆	☆	☆	☆
Tape Path Block							
Pinch Roller	X-3678-788-	Pinch Arm Assembly	A	☆	☆	☆	☆
Guide Roller TG-1,TG-8	3-604-702-	Roller TG-18	A	◇	◇	◇	◇
Guide Roller TG-2	A-8278-429-	TR Arm Assembly	A	◇	◇	◇	◇
Guide Roller TG-3	3-604-717-	Roller TG-3	A	◇	◇	◇	◇
Guide Roller TG-5	X-3748-626-	TG-5 Assembly	A	◇	◇	◇	◇
Guide Roller TG-7	3-748-777-	Roller TG-7	A	◇	◇	◇	◇
Tape Path	—	—	—	○	○	○	○
Clener							
Cleaning Roller	A-8311-505-	C Assembly	A	☆	☆	☆	☆
Others							
Cassette Memory Terminal	A-8311-396-	MIC Holder (C) Assembly	A	◇○	◇○	◇○	◇○

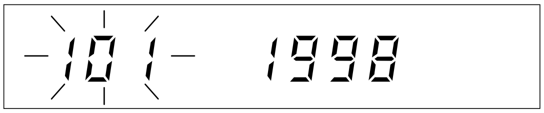
HOURS METER MODE A: DRUM RUNNING

3-2. HOURS METER

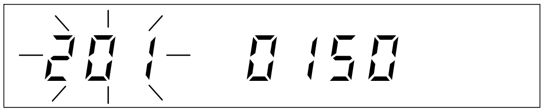
An hours meter is provided in the MENU mode.
The total operating time of the unit, total rotation time of the drum, and total running time of the tape are displayed on the window at the side.
It is recommended that this hours meter be used as a reference for carrying maintenance.
Display the hours meter using the following method.



1. When the MENU switch on the side is pressed, the following will be displayed.
   <Display Example>



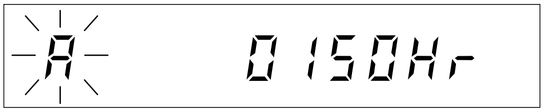
2. When the ADVANCE switch is pressed once, the following will be displayed.
   <Display Example>



3. Each time the SHIFT switch is pressed, the display will change as follows.

A : DRUM RUNNING METER
↓
B : TAPE RUNNING METER
↓
C : OPERATION METER
↓
201 : DRUM RUNNING METER

<Display Example: A>
This means that the total time the drum is rotating is 150H.



4. To end the MENU mode, press the MENU switch again.

Note: The hours meter data is preserved in the nonvolatile memory (IC204) on the FP-98 board. To replace the FP-98 board, replace the nonvolatile memory (IC3) or execute EEPROM ECHO BACK DATE PRESET using maintenance menu No. 659. The data the last time the power was turned ON will be written in the new nonvolatile memory.

3-3. MAINTENANCE AFTER REPAIRS

After repairing the unit, carry out the following maintenance regardless of how long the unit has been used.

- Cleaning of video head
- Cleaning of tape path

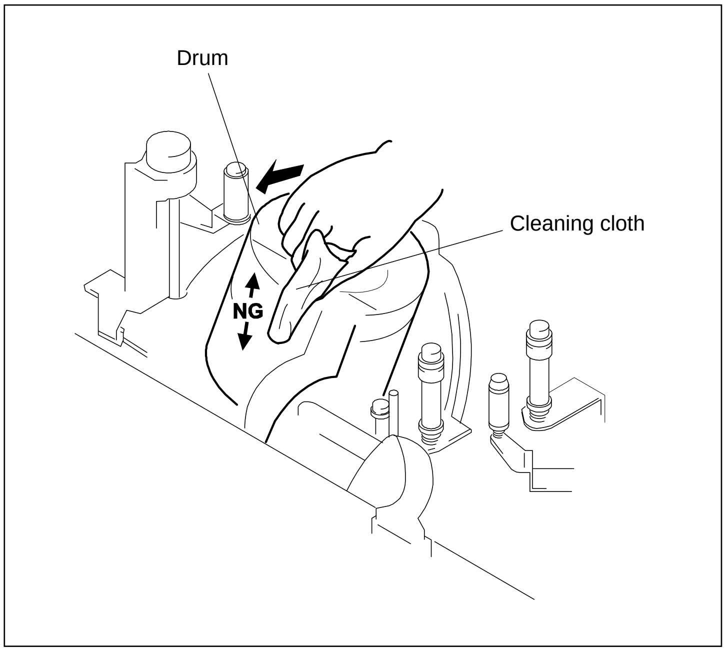
3-4. CLEANING METHOD

To perform cleaning, remove the cover of the cassette up compartment cover. (Refer to 4-2. Replacement of Cassette Compartment Assembly.)
When loading cassette tapes after cleaning, wait for the cleaning liquid to evaporate completely.

(1) Cleaning the Rotary Drum Assembly

Using a cleaning cloth moistened with cleaning liquid, gently touch the cloth on the rotary drum assembly. Rotate the rotary upper drum slowly in the counterclockwise direction with your fingers to clean.

Note: **Do not rotate the motor with the power turned ON nor rotate it in the clockwise direction with your fingers. Do not move the cleaning cloth over the head chip in the vertical direction, as this may damage the head chip. Never clean the head in this way.**

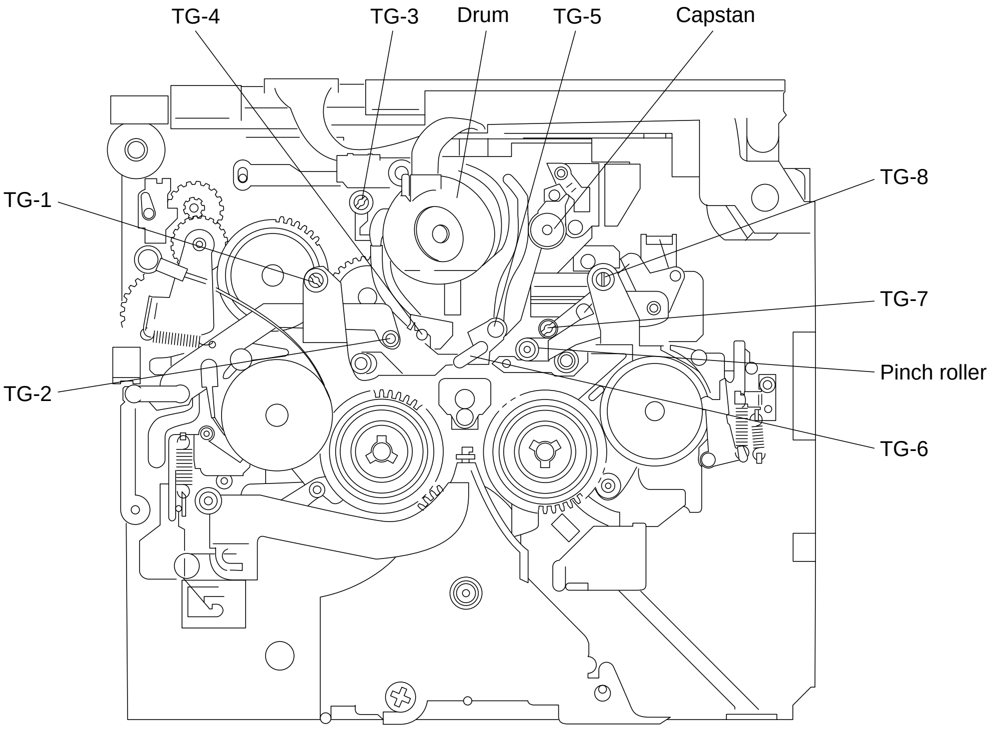


(2) Cleaning the Tape Path

Set the threading end state, and clean the tape path (TG-1, 2, 3, 4, 5, 6, 7, 8, capstan, pinch roller) and lower drum with a stick moistened with cleaning liquid.

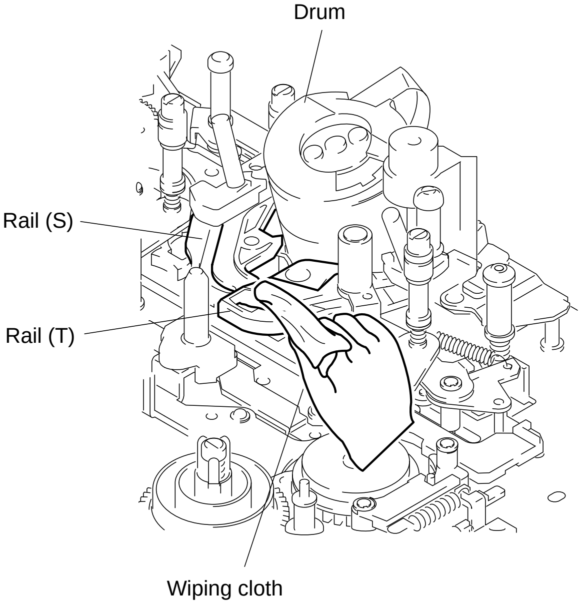
Note 1: Make sure the oil and grease on the linked mechanisms do not adhere to the stick.

Note 2: Do not use a stick moistened with alcohol for cleaning other guides. However clean the pinch roller with alcohol.


TG-4
TG-3
Drum
TG-5
Capstan
TG-1
TG-8
TG-7
Pinch roller
TG-2
TG-6

(3) Cleaning the Rail

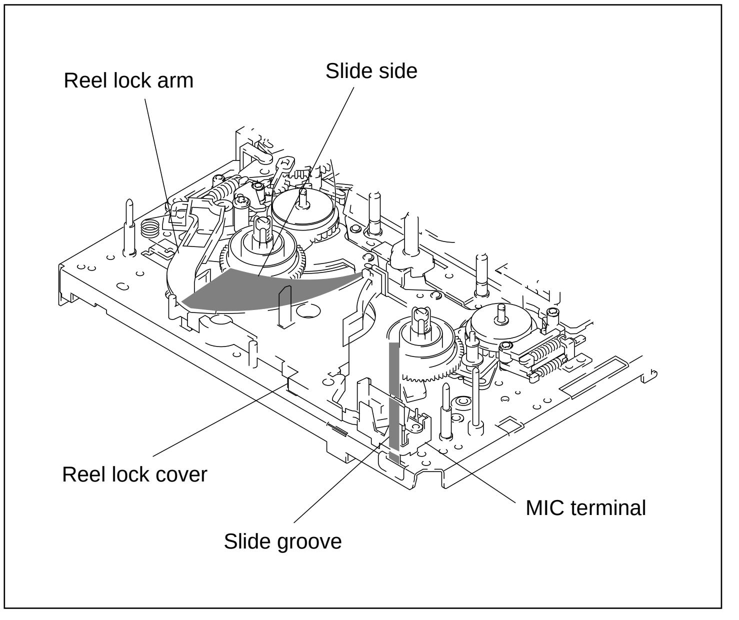
Wipe with a cloth moistened with alcohol.


Drum
Rail (S)
Rail (T)
Wiping cloth

3-5. AFTER USE IN COASTAL AREAS AND DUSTY AREAS

After use in coastal and dusty areas, it is recommended that the following be checked.

1. Wipe away sand and dusts in the unit with a cleaning cloth moistened with cleaning liquid, or remove carefully with an air brush, etc.
2. Clean the video head with a cleaning cloth moistened with cleaning liquid.
3. Clean the tape path (drum surface, tape guide, capstan shaft, pinch roller, etc.)
4. Clean the groove for sliding the MIC terminal on the chassis and the side of the reel lock cover for sliding the reel lock arm. (See the figure.)
5. Clean the side touching the break shoe of the reel table.
6. Rotate the rotating body of the tape guide, pulley, capstan, and pinch roller, and check that no abnormal noise is produced.
   Replace the parts if an abnormal noise appears.
7. After use in coastal areas, remove the printed wiring board from the unit, and remove the sand in the component side completely with an air brush. Then clean with a cleaning cloth moistened with cleaning liquid.
   After this, clean the soldering side adequately with a wiping cloth moistened with cleaning liquid.
8. Clean the connector pin of the connector panel thoroughly.
9. Perform general checks and check that there are no abnormalities.



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SECTION 4
REPLACEMENT/ALIGNMENT OF MAJOR PARTS

4-1. GENERAL INFORMATION ON REPLACEMENT/ALIGNMENT OF PARTS

1. Cassette compartment
   When replacing parts and adjusting mechanism parts, unless specified otherwise, remove the cassette compartment from the unit.
   Details on how to replace the cassette compartment are provided in Section 4-2.
   When setting the tape running state without the cassette compartment, open the cassette lid, and secure the lid with a tape, etc.

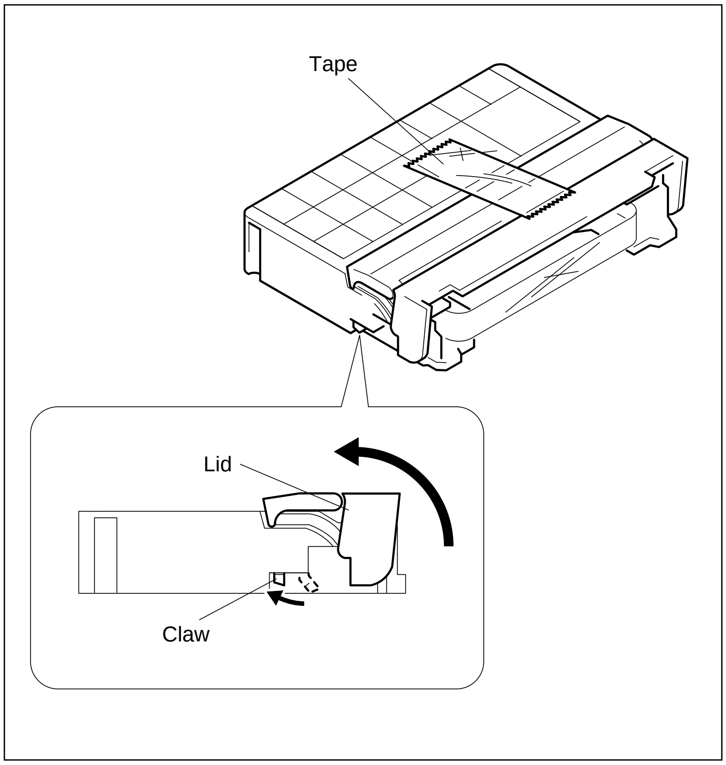
Mini cassette

- Move the claw (one) as shown in the figure, and open the lid.

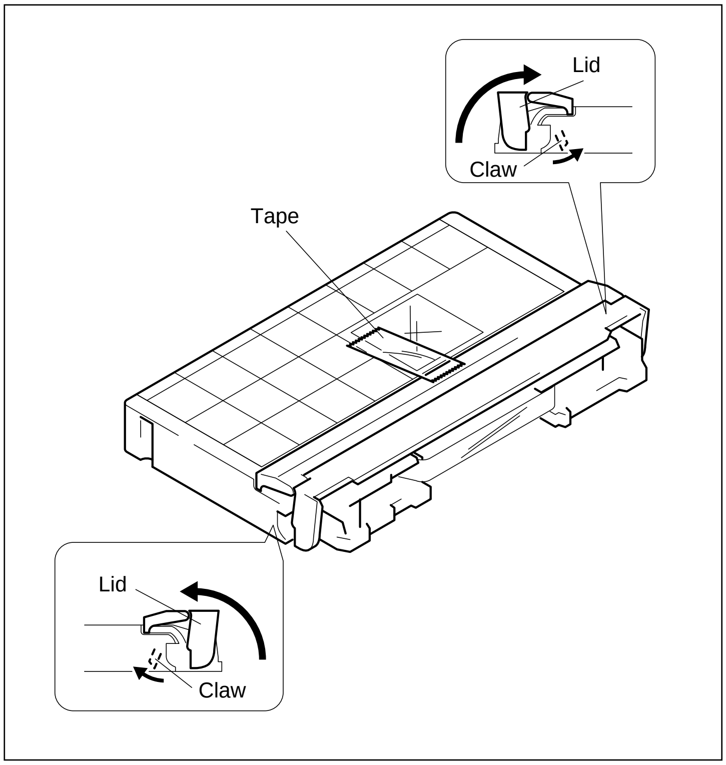
Standard cassette

- Move the claws (two) as shown in the figure, and open the lid.

Mini cassette



Standard cassette

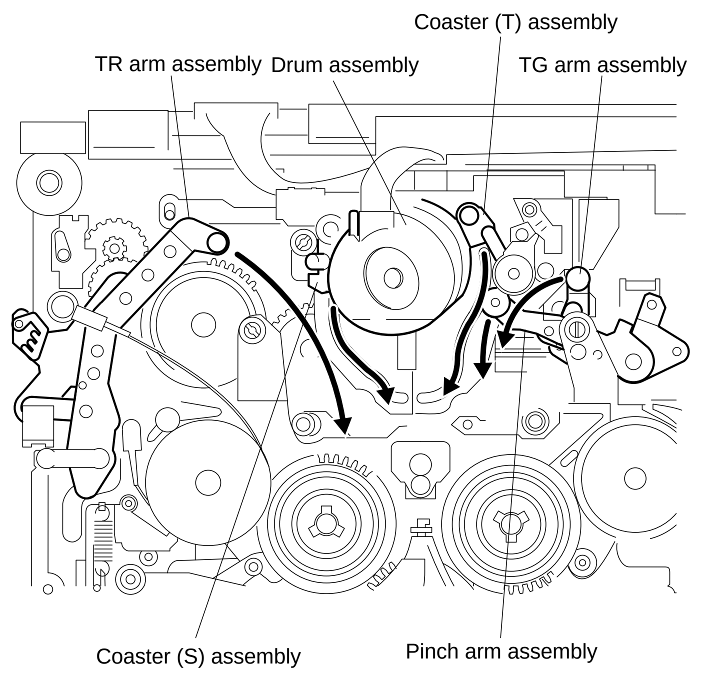


2. Mode
   The TR arm assembly, coaster (S/T) assembly, pinch arm assembly and TG-7 arm assembly move and become in either threading end or unthreading end state.
   In the above state, they can stay in any position unless the mode has been specified on the following pages.

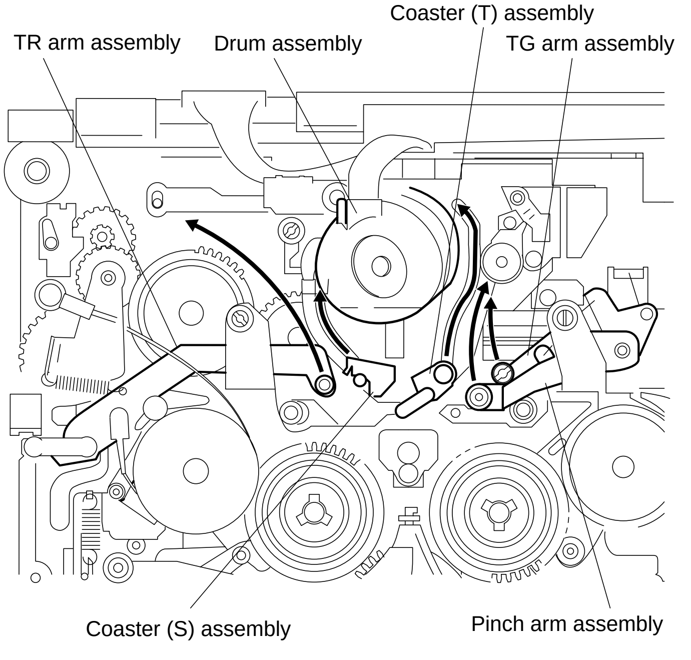
   Threading end:
   The TR arm assembly, coaster (S/T) assembly, and pinch arm assembly, and TG-7 arm assembly are positioned at the drum side as shown in the figure.

   Unthreading end:
   The TR arm assembly, coaster (S/T) assembly, pinch arm assembly, and TG-7 arm assembly are positioned at the cassette side.

Threading End

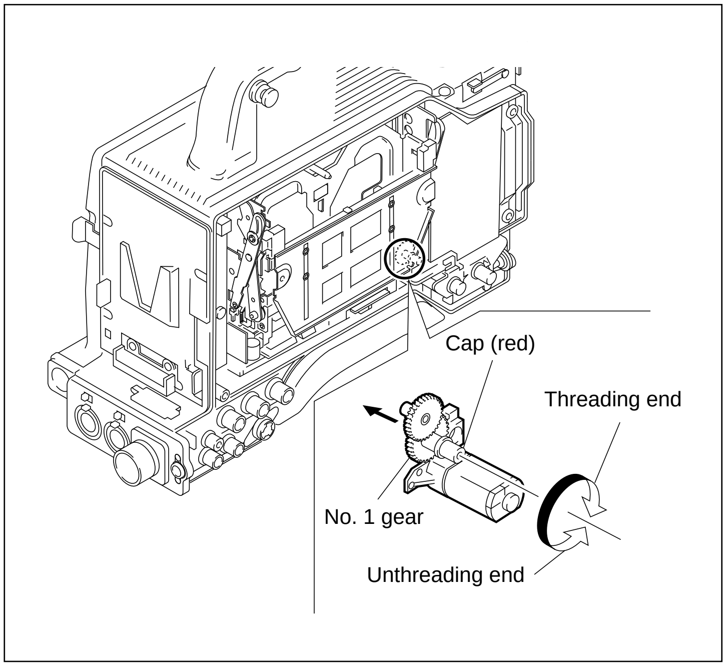

Coaster (T) assembly
TR arm assembly
Drum assembly
TG arm assembly
Coaster (S) assembly
Pinch arm assembly

Unthreading End


Coaster (T) assembly
TR arm assembly
Drum assembly
TG arm assembly
Coaster (S) assembly
Pinch arm assembly

1) Setting manually
   - Open the left panel assy. (Refer to Section 2-1.)
   - Rotate the cap and No. 1 gear shown in the figure in the arrow direction while pressing it down to set the threading end/unthreading end.

2) Setting with the menu
   Select Menu No. 613, and set the function cam mode.
   - Threading is carried out while the STOP button is pressed.
   - Unthreading is carried out while the EJECT button is pressed.

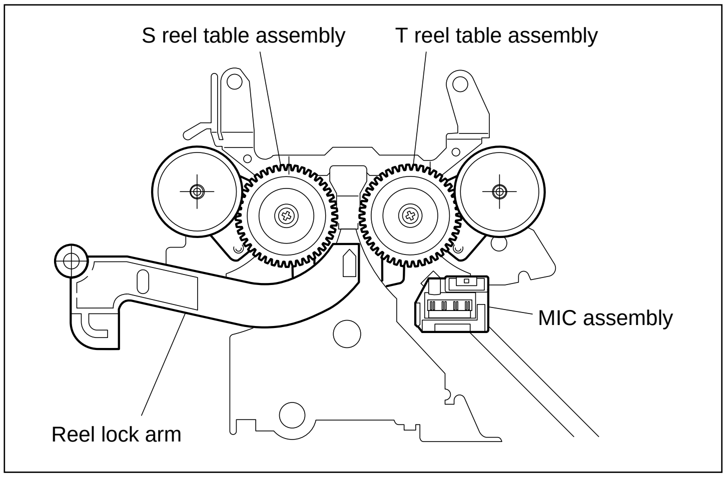

Cap (red)
Threading end
No. 1 gear
Unthreading end

3. Reel Table Position
   It is set to the mini cassette position/standard cassette position according to the position of the S reel table assembly/T reel table assembly.

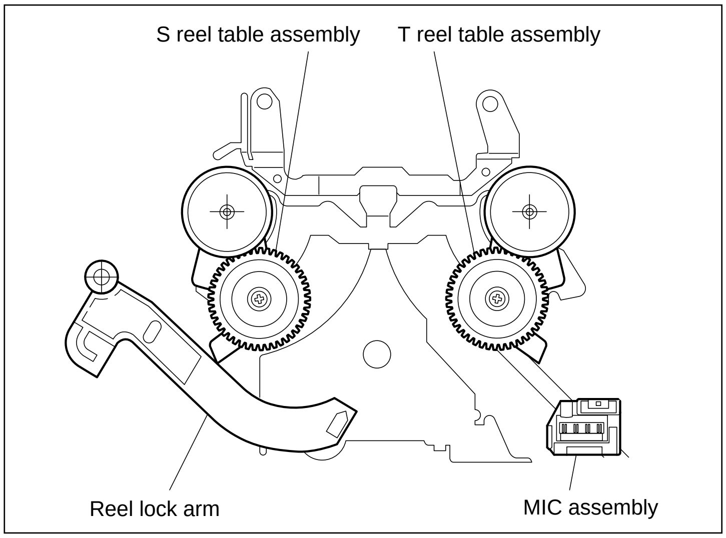
   Mini cassette position:
   The reel lock arm, S reel table assembly/T reel table assembly, and MIC assembly are positioned at the drum side as shown in the figure.

   Standard cassette position:
   The reel lock arm, S reel table assembly/T reel table assembly, and MIC assembly are positioned at the inserting side of the cassette as shown in the figure.

Mini cassette position


S reel table assembly
T reel table assembly
MIC assembly
Reel lock arm

Standard cassette position

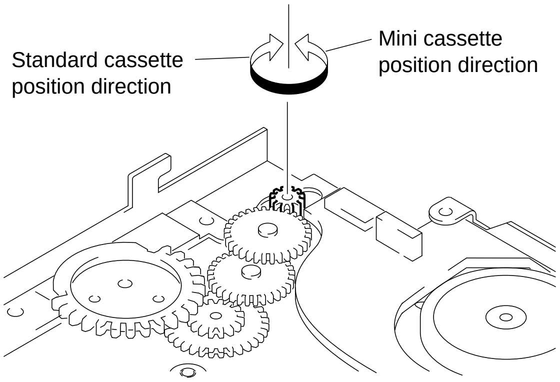

S reel table assembly
T reel table assembly
Reel lock arm
MIC assembly

1) Setting manually
- Open the right panel assy.
  (Refer to Section 2-1.)
- Remove the ES-21 board and DPR-99 board.
- Move up the cassette compartment.
  (Refer to Section 2-7.)
- Rotate the gear of the shift motor shown in the figure in the arrow direction, to set the mini cassette position/standard cassette position.

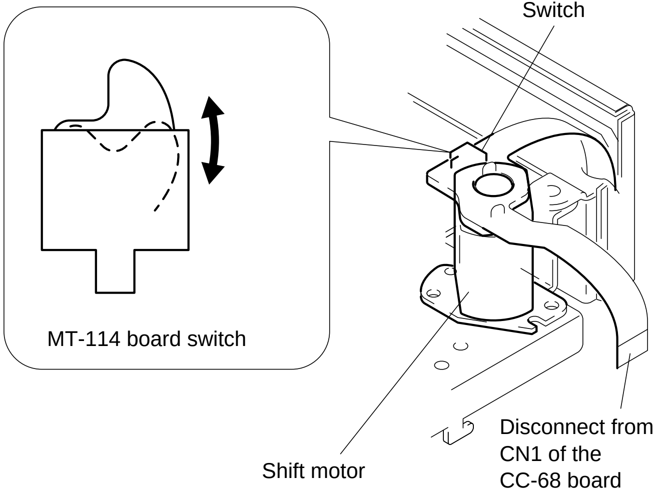
2) Setting with the switch
- Set the mode to the unthreading end.
- Move up the cassette compartment.
- Disconnect the connector (CN1) of the CC-68 board.
- Turn ON the power.
- Press the switch on the MT-114 board on the reel shift motor to move to the mini cassette position/standard cassette position.

4. Do not use the stopper washers that secure parts once they have been removed for attaching new parts. After replacing parts, always use new stopper washers.
   To attach stopper washers, push in until the space between the attached part and stopper washer is 0.1 to 0.2 mm.

Setting manually


Standard cassette position direction
Mini cassette position direction

Setting with the switch


Switch
MT-114 board switch
Shift motor
Disconnect from CN1 of the CC-68 board

4-2. REPLACEMENT OF CASSETTE COMPARTMENT ASSEMBLY

Reel table position: Mini cassette position
Mode: Unthreading end

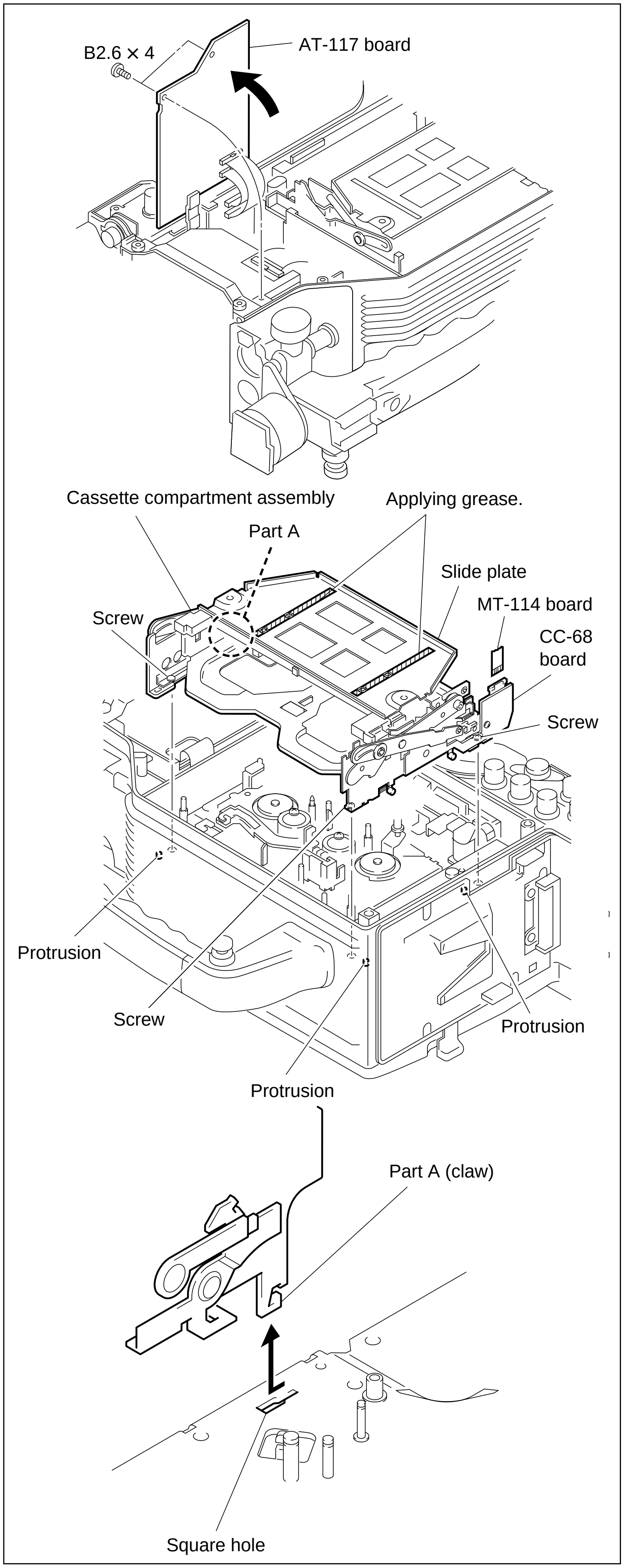
Removal

1. Remove the two screws of the AT-117 board and open the AT-117 board arrow direction.
2. Eject and turn the cassette compartment assembly up.
3. Pull out the MT-114 board on the reel shift motor shown in the figure from the CC-68 board.
4. Loosen the three screws, remove part A from the square hole, and remove the cassette compartment assembly.

Attachment

5. Apply a small quantity of the grease SGL-801 (7-651-000-11) to the two square holes (shown with oblique lines in the figure) on the slide plate, then apply it in all square holes entirely.
6. Attach the new cassette compartment assembly and removed parts in the reverse order of steps 1 to 4.

Note: Adjust the cassette compartment assembly to the three protrusion on the mechanism chassis first before securing the screws.


B2.6 × 4
AT-117 board
Cassette compartment assembly
Applying grease.
Part A
Slide plate
Screw
MT-114 board
CC-68 board
Screw
Protrusion
Screw
Protrusion
Protrusion
Part A (claw)
Square hole

4-3. REPLACEMENT OF DRUM ASSEMBLY

Reel table position: Standard cassette position
Mode: Unthreading end

Replacement Flowchart

Removal of SV-164 board
↓
Removal of HN-227 board
↓
Removal of capstan motor
↓
Replacement of drum assembly
↓
Cleaning roller operation check
↓
Capstan FG DUTY adjustment
↓
Tape path check
↓
Tracking adjustment
↓
Switching position adjustment
↓
AUTO EQ adjustment

Removal

1. Remove the SV-164 board. (Refer to 2-11-8.)
2. Remove the HN-227 board. (Refer to 2-11-9.)
3. Remove the capstan motor. (Refer to 4-28.)
4. Disconnect the harness shown in the figure from the connector (CN771) of the RP-91 board.
5. Remove the three screws and remove the drum assembly.

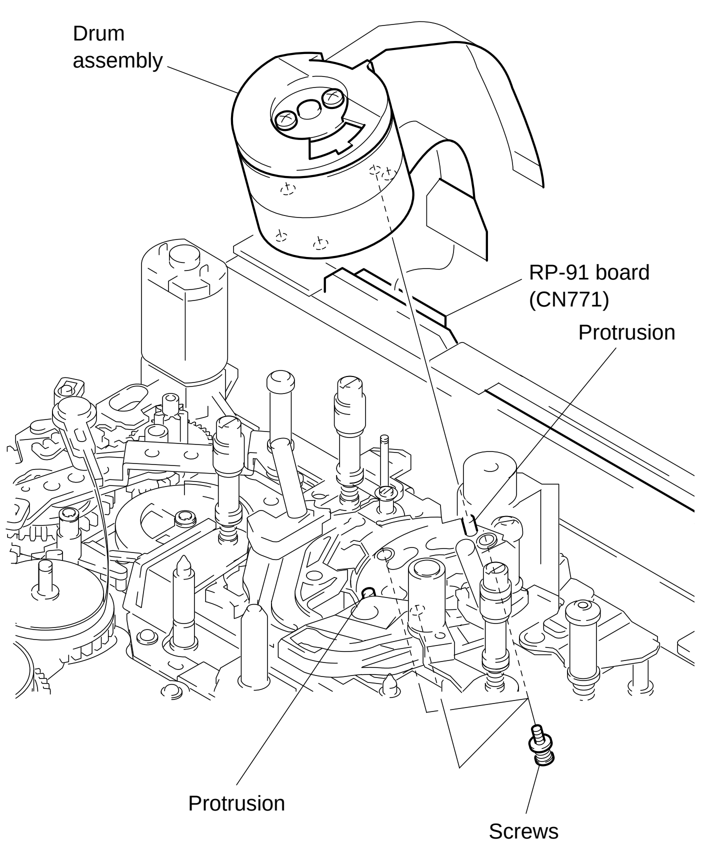
Attachment

6. Adjust the holes of the new drum assembly to the two protrusions shown in the figure, and attach using three screws.
   - Tightening torque: 0.0294 N•m (0.3 kg•cm)

   Note: **When attaching, do not touch the tape path side of the drum to prevent it from scratching and becoming dirty.**
7. Attach the removed parts in the reverse order of steps 1 to 4.

Check/Adjustment

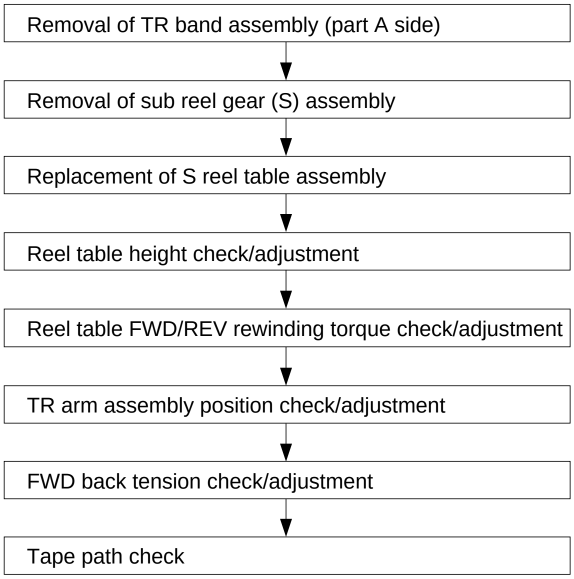
8. Perform the cleaning roller operation check. (Refer to step 3 in the Section 4-21.)
9. Perform the capstan FG DUTY adjustment at the Menu M601. (Refer to Section 8-1.)
10. Perform tape path check. (Refer to Section 5-3.)
11. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)
12. Perform the switching position adjustment at Menu M605. (Refer to Section 5-8.)
13. Perform the auto EQ adjustment at the Menu M704. (Refer to Section 8-3.)



4-4. REPLACEMENT OF S REEL TABLE ASSEMBLY

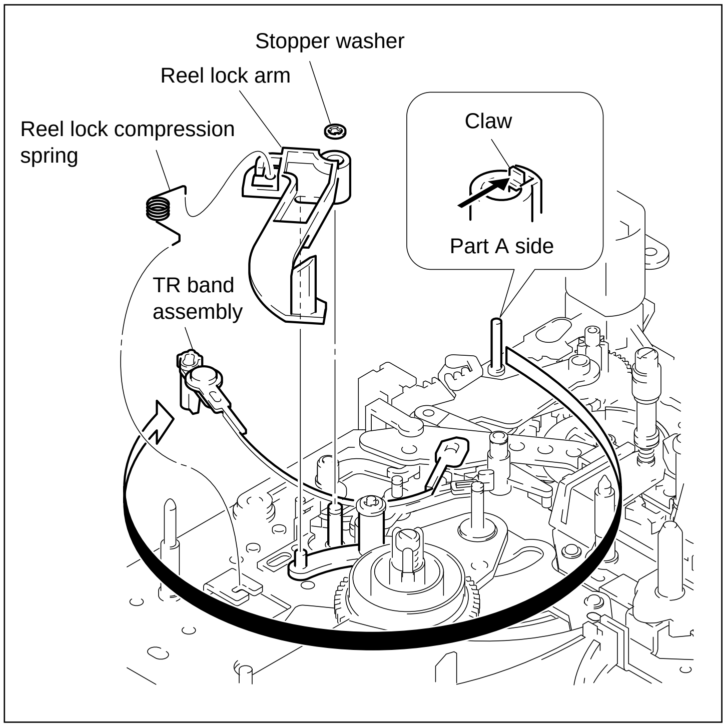
Reel table position: Standard cassette position

Replacement Flowchart


Removal of TR band assembly (part A side)
Removal of sub reel gear (S) assembly
Replacement of S reel table assembly
Reel table height check/adjustment
Reel table FWD/REV rewinding torque check/adjustment
TR arm assembly position check/adjustment
FWD back tension check/adjustment
Tape path check

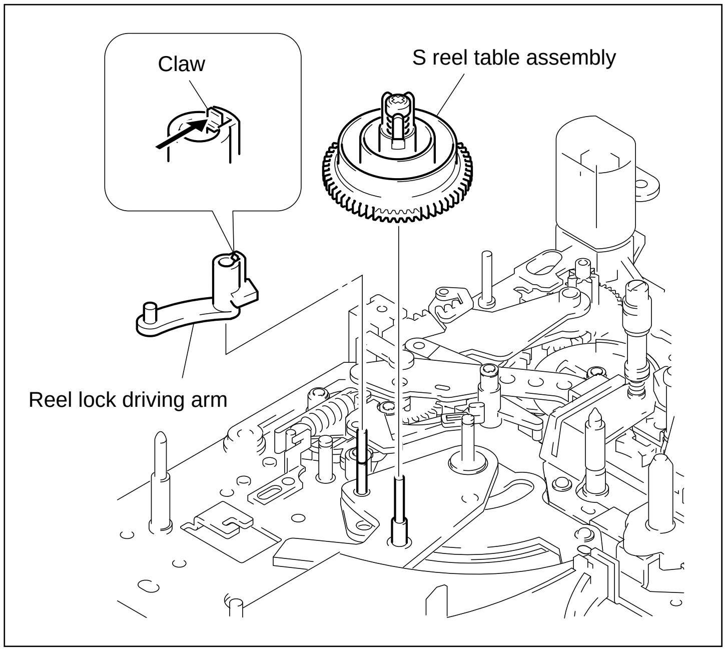
Removal

1. Remove the TR band assembly (part A side) shown in the figure.
2. Remove the sub reel gear (S) assembly. (Refer to Section 4-10.)
3. Remove the washer shown in the figure, and remove the reel lock driving arm.


Stopper washer
Reel lock arm
Reel lock compression spring
Claw
Part A side
TR band assembly

Replacement/Attachment

4. Remove the S side reel table assembly, and replace with a new reel table assembly.
5. Attach the removed parts in the reverse order of steps 1 to 3.
6. Rotate the S reel table assembly with your hand, and check that it rotates smoothly.


Claw
S reel table assembly
Reel lock driving arm

Check/Adjustment

7. Perform reel table height check/adjustment. (Refer to Section 4-36.)
8. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)
9. Perform TR arm assembly position check/adjustment. (Refer to Section 4-40.)
10. Perform FWD back tension check/adjustment. (Refer to Section 4-39.)
11. Perform the tape path check. (Refer to Section 5-3.)

4-5. REPLACEMENT OF T REEL TABLE ASSEMBLY

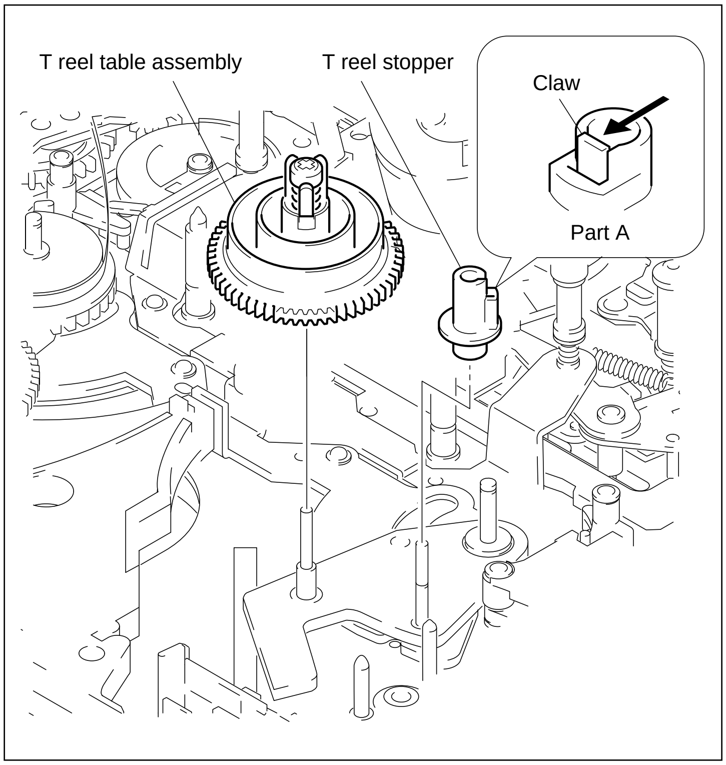
Reel table position: Standard cassette position

Replacement Flowchart

Removal of sub reel gear (T) assembly
↓
Replacement of T reel table assembly
↓
T reel table height check/adjustment
↓
Reel table FWD/REV rewinding torque check/adjustment
↓
FWD back tension check/adjustment
↓
Tape path check

Removal

1. Remove the sub reel gear (T) assembly.
   (Refer to Section 4-11.)
2. While pressing the claw at part A shown in the figure in the arrow direction, remove the T reel stopper upwards.



Replacement/Attachment

3. Remove the T side reel table assembly, and replace with a new reel table assembly.
4. Attach the removed parts in the reverse order of steps 1 and 2.
5. Rotate the T reel table assembly with your hand, and check that it rotates smoothly.

Check/Adjustment

6. Perform reel table height check/adjustment.
   (Refer to Section 4-36.)
7. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)
8. Perform FWD back tension check/adjustment.
   (Refer to Section 4-39.)
9. Perform the tape path check.
   (Refer to Section 5-3.)

4-6. REPLACEMENT OF SOFT BRAKE ARM (S)

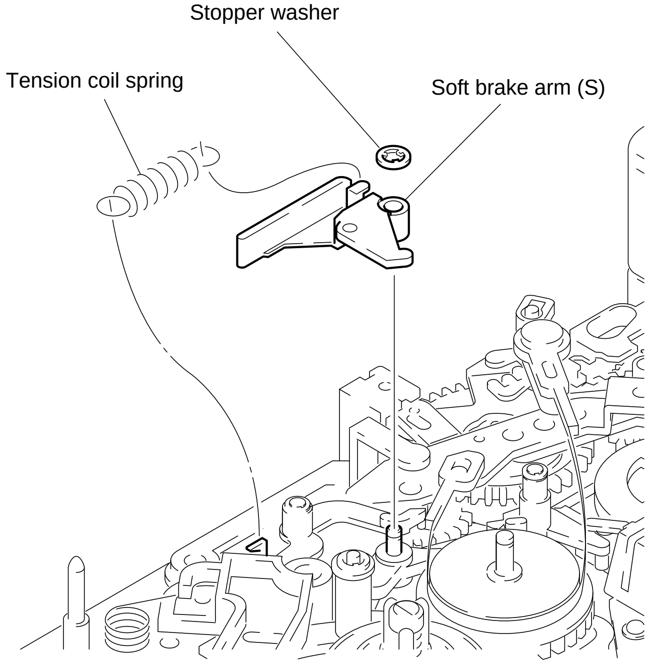
Mode: Unthreading end

Removal

1. Remove the tension coil spring shown in the figure.
2. Remove the stopper washer, and remove the soft brake arm (S).

Attachment

3. Attach a new soft brake arm (S) in the reverse order of step 2.
4. Attach the tension coil spring of step 1.


Stopper washer
Tension coil spring
Soft brake arm (S)

4-7. REPLACEMENT OF HARD BRAKE ARM (S) ASSEMBLY

Mode: Unthreading end

Replacement Flowchart

Removal of soft brake arm (S)
↓
Removal of TR band assembly (part A side)
↓
Removal of sub reel gear (S)
↓
Replacement of hard brake arm (S) assembly
↓
TR arm assembly position check/adjustment
↓
FWD back tension check/adjustment

Removal

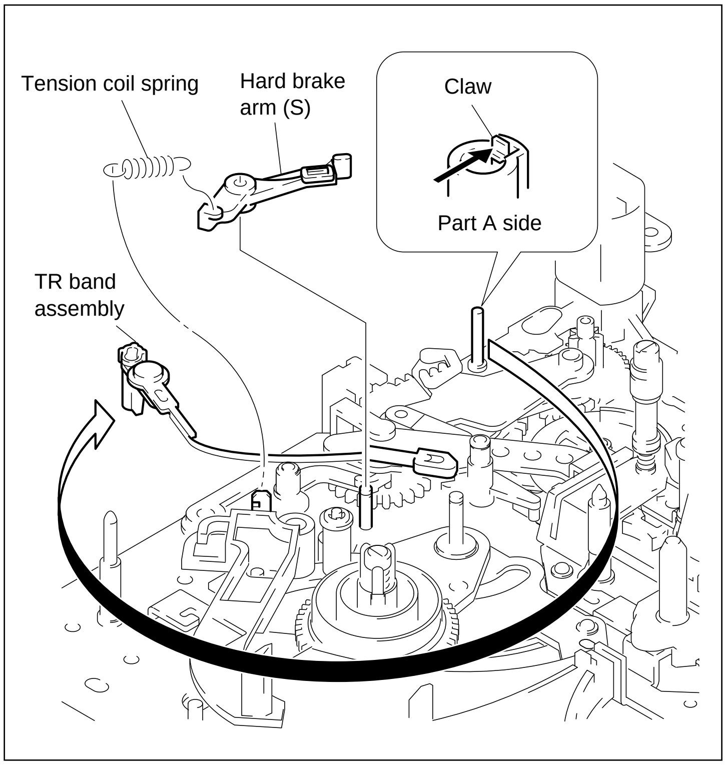
1. Remove the soft brake arm (S).
   (Refer to Section 4-6.)
2. Remove the TR band assembly (part A side).
3. Remove the sub reel gear (S) assembly.
   (Refer to Section 4-10.)
4. Remove the tension coil spring shown in the figure.
5. Remove the hard brake arm (S) assembly.

Attachment

6. Remove a new hard brake arm (S) assembly.
7. Attach the removed parts in the reverse order of steps 1 to 4.

Check/Adjustment

8. Perform TR arm assembly position check/adjustment. (Refer to Section 4-40.)
9. Perform FWD back tension check/adjustment.
   (Refer to Section 4-39.)



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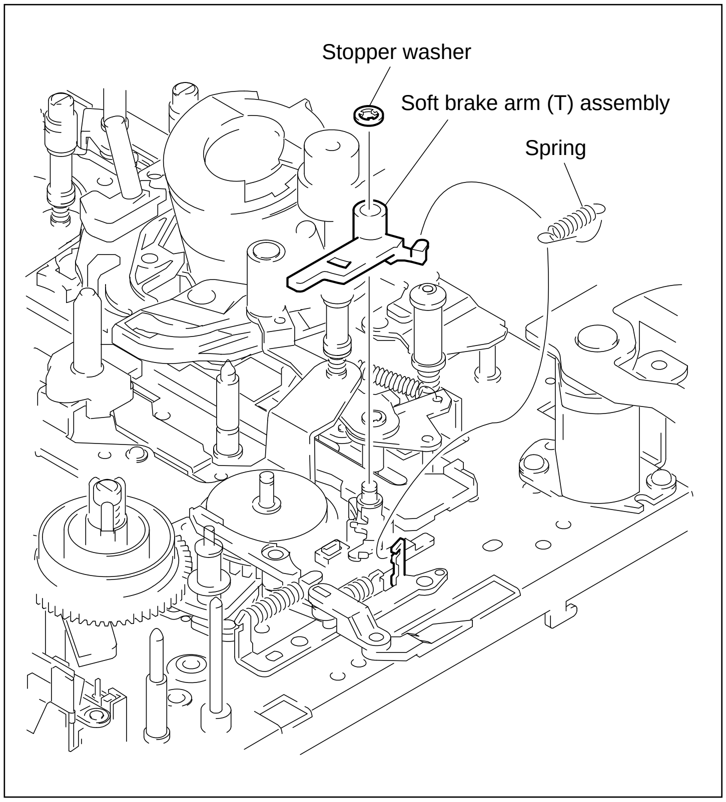
4-8. REPLACEMENT OF SOFT BRAKE (T) ASSEMBLY COMPONENTS

4-8-1. Replacement of Soft Brake Arm (T) Assembly

Reel table position: Standard cassette position
Mode: Unthreading end

Removal/Attachment

1. Remove the spring shown in the figure.
2. Remove the stopper washer and remove the soft brake arm (T) assembly.
3. Attach the soft brake arm (T) assembly in the reverse order of steps 1 and 2.

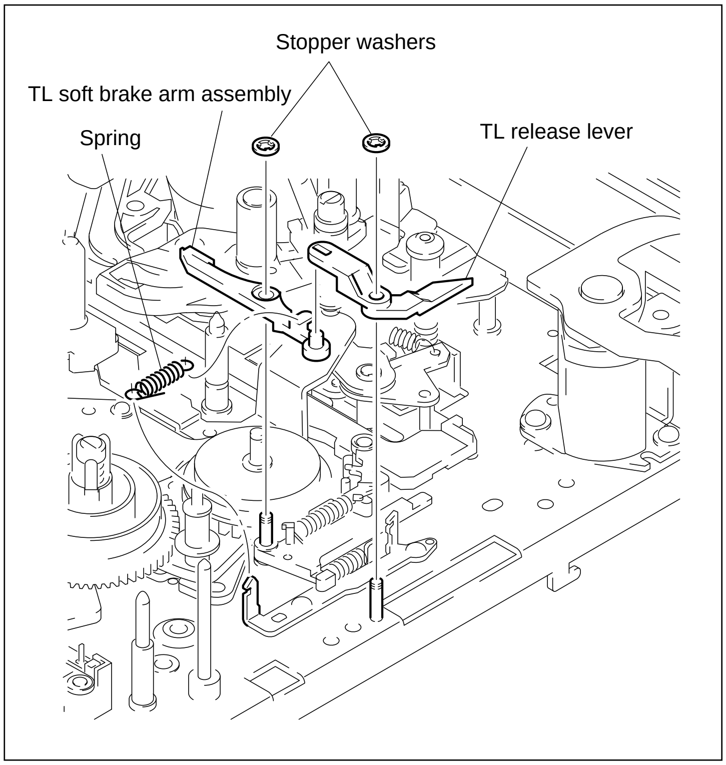

Stopper washer
Soft brake arm (T) assembly
Spring

4-8-2. Replacement of TL Soft Brake Assembly

Reel table position: Standard cassette position
Mode: Unthreading end

Removal/Attachment

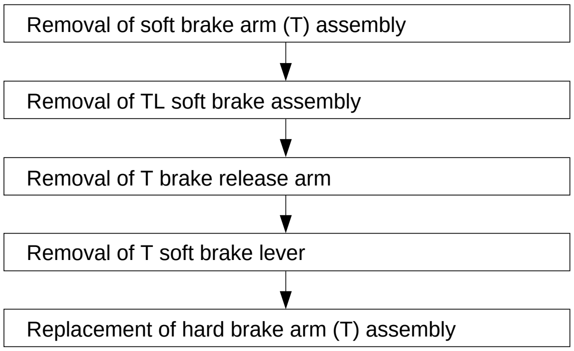
1. Remove the spring shown in the figure.
2. Remove the two stopper washers and remove the TL release lever and TL soft brake assembly.
3. Attach the soft brake arm (T) assembly in the reverse order of steps 1 and 2.


Stopper washers
TL soft brake arm assembly
Spring
TL release lever

4-9. REPLACEMENT OF HARD BRAKE ARM (T) ASSEMBLY

Mode: Unthreading end

Replacement Flowchart

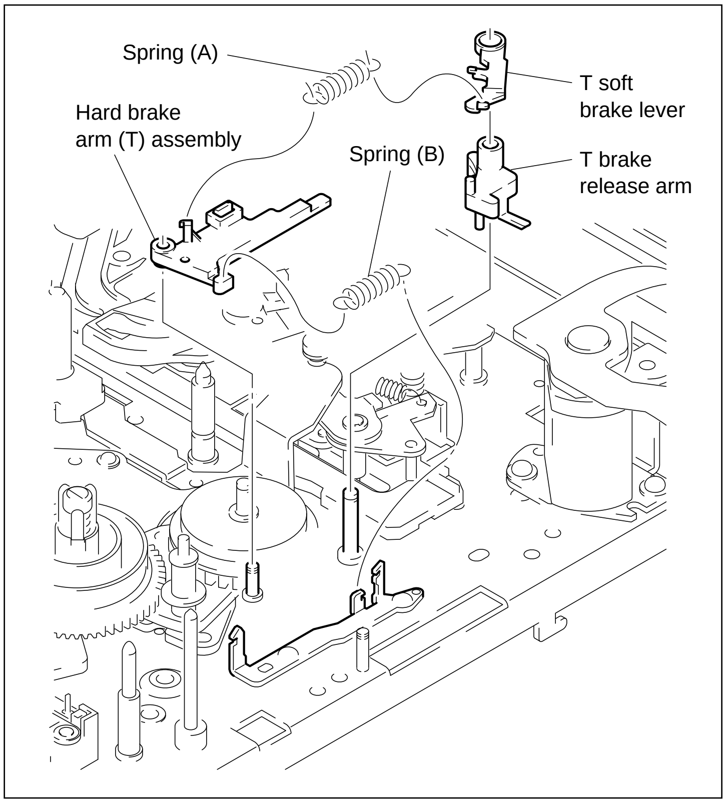

Removal of soft brake arm (T) assembly
Removal of TL soft brake assembly
Removal of T brake release arm
Removal of T soft brake lever
Replacement of hard brake arm (T) assembly

Removal

1. Remove the soft brake arm (T) assembly. (Refer to Section 4-8-1.)
2. Remove the TL soft brake assembly. (Refer to Section 4-8-2.)
3. Remove spring (A) and then remove the T soft brake lever.
4. Remove the T brake release arm.
5. Remove the spring (B) shown in the figure, and remove the hard brake arm (T) assembly.

Attachment

6. Attach a new hard brake arm (T) assembly.
7. Attach the removed parts in the reverse order of steps 1 to 4.


Spring (A)
T soft brake lever
Hard brake arm (T) assembly
Spring (B)
T brake release arm

4-10. REPLACEMENT OF SUB REEL GEAR (S) ASSEMBLY

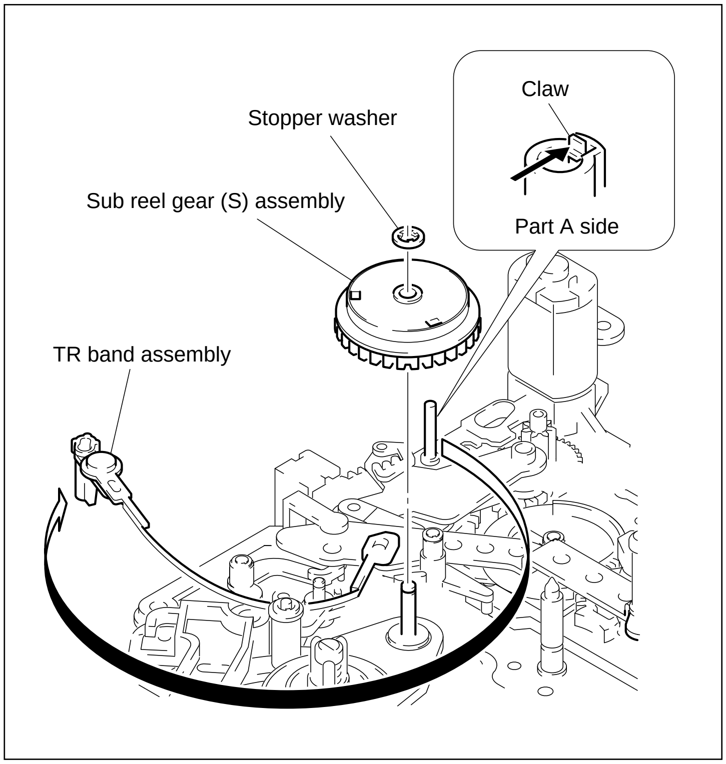
Reel table position: Standard cassette position
Mode: Unthreading end

Replacement Flowchart

Removal of soft brake arm (S)
↓
Removal of TR band assembly (part A side)
↓
Replacement of sub reel gear (S) assembly
↓
Reel table FWD/REV rewinding torque check/adjustment
↓
TR arm assembly position check/adjustment
↓
FWD back tension adjustment

Removal

1. Remove the soft brake arm (S).
   (Refer to Section 4-6.)
2. Remove the TR band assembly (part A side).
3. Remove the stopper washer shown in the figure, and remove the sub reel gear (S) assembly.



Attachment

4. Attach the new sub reel gear (S) assembly.
5. Attach the removed parts in the reverse order of steps 1 and 2.

Check/Adjustment

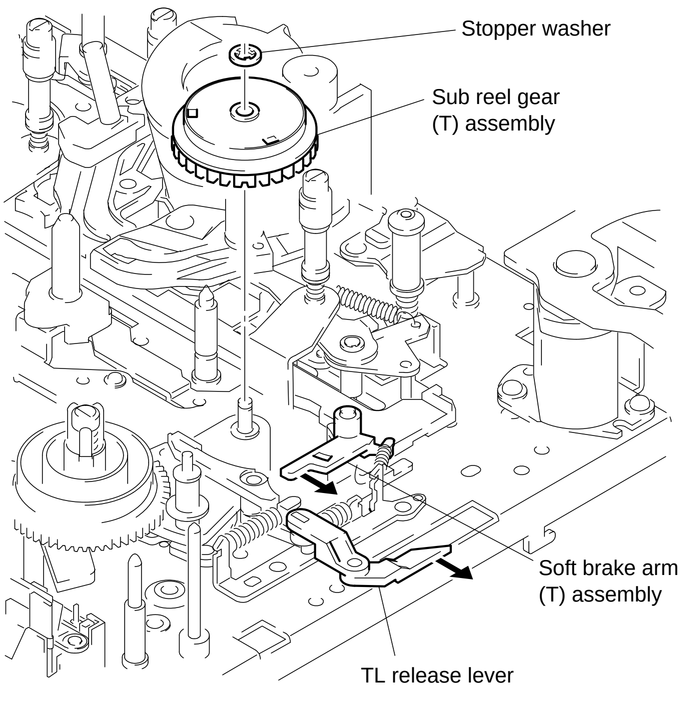
6. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)
7. Perform TR arm assembly position check/adjustment. (Refer to Section 4-40.)
8. Perform FWD back tension check/adjustment. (Refer to Section 4-39.)

4-11. REPLACEMENT OF SUB REEL GEAR (T) ASSEMBLY

Mode: Unthreading end

Removal/Attachment

1. Move the soft brake arm (T) and release lever shown in the figure in the arrow direction, and remove the stopper washer and sub reel gear (T) assembly.
2. Attach the sub reel gear (T) assembly in the reverse procedure of step 1.


Stopper washer
Sub reel gear
(T) assembly
Soft brake arm
(T) assembly
TL release lever

4-12. REPLACEMENT OF TR BAND ASSEMBLY

Reel table position: Standard cassette position

Replacement Flowchart

Removal of soft brake arm (S)

↓

Removal of sensor attachment plate assembly

↓

Replacement of TR band assembly

↓

Reel table FWD/REV rewinding torque adjustment

↓

TR arm assembly position check/adjustment

↓

FWD back tension adjustment

↓

Tape path check

Removal

1. Set to the unthreading end, and remove the soft brake arm (S). (Refer to Section 4-6.)
2. Remove the sensor attachment plate assembly. (Refer to Section 4-15.)
3. Push part A of the TR band assembly shown in the figure in the arrow direction, and remove it upwards.
4. Set to the threading end, rotate part B of the TR band assembly in arrow direction ⓐ, and remove it from the hole of part B.

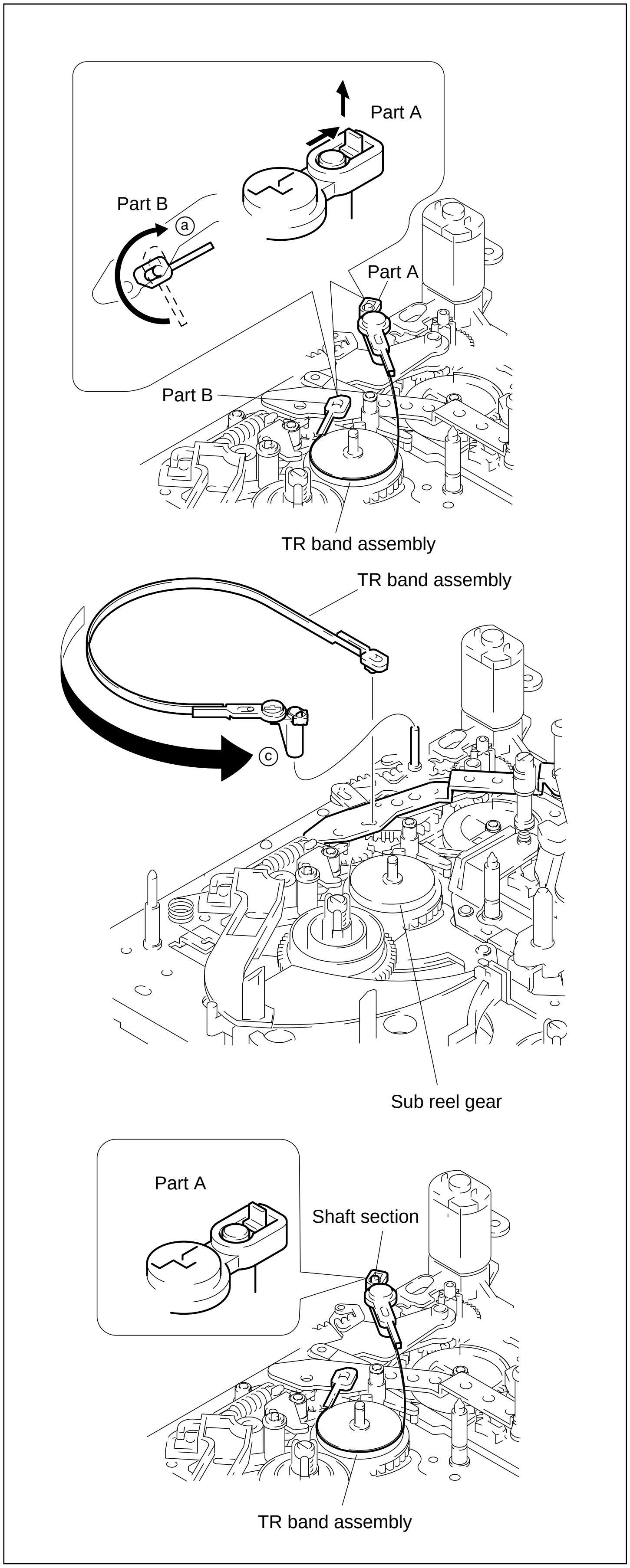
Attachment

Note: Do not touch the felt part of the TR band assembly.

5. Insert part B of the new TR band assembly in the hole, rotate it in ⓒ direction according to the reverse steps of 4 to hold, and wind it around the sub reel gear.
6. Set the TR band to the unthreading end without scratching it, and insert part A of the TR band assembly into the shaft until it locks.
7. Attach the soft brake arm (S) and sensor attachment plate.

Adjustment

8. Perform the reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)
9. Perform TR arm assembly position check/ adjustment. (Refer to Section 4-40.)
10. Perform FWD back tension check/adjustment. (Refer to Section 4-39.)
11. Perform tape path check. (Refer to Section 5-3.)



4-13. REPLACEMENT OF SHIFT MOTOR ASSEMBLY

The shift motor assembly can be replaced with the cassette compartment attached.

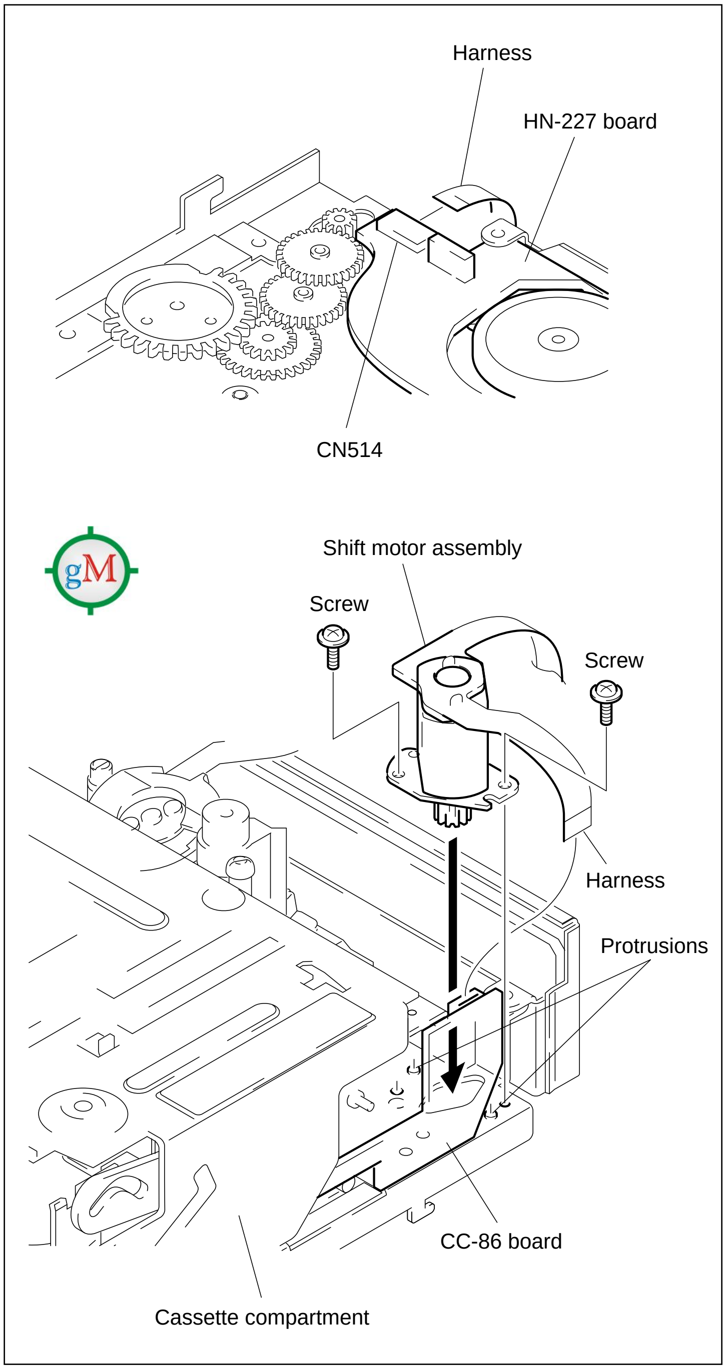
Mode: Unthreading end

Removal

1. Remove the SV-164 board.
   (Refer to Section 2-11-8.)
2. Pull out the harness from the CN514 connector of the HN-227 board shown in the figure.
3. Pull out the harness from the CN514 connector of the CC-86 board shown in the figure.
4. Remove the two screws and remove the shift motor assembly.

Attachment

5. Adjust the new shift motor to the two protrusions shown in the figure, and attach with the two screws.
6. Attach the harness and SV-164 board in the reverse order of steps 1 to 3.


Harness
HN-227 board
CN514
Shift motor assembly
Screw
Screw
Harness
Protrusions
CC-86 board
Cassette compartment

4-14. REPLACEMENT OF LD ASSEMBLY

The components of the LD assembly include the worm shaft assembly. This section explains the LD assembly and worm shaft assembly.

Removal

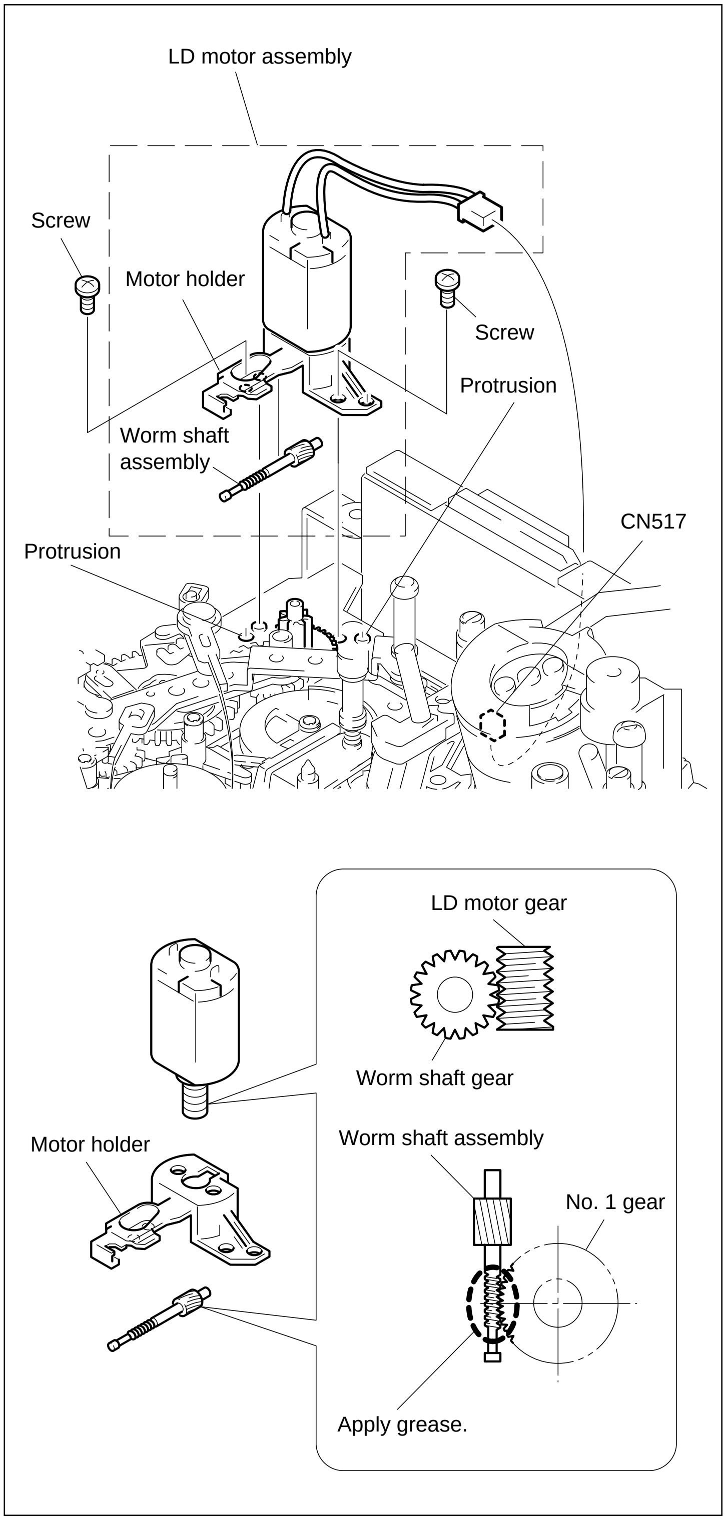
1. Disconnect the connector (CN517) of the LD motor assembly shown in the figure.
2. Remove the two screws, and remove the LD motor assembly.
3. Remove the worm shaft assembly from the motor holder.
4. Attach the new worm shaft assembly to the motor holder so that the gears engage as shown in the figure.
5. Apply grease onto the worm shaft assembly.

Attachment

6. Attach the new LD motor assembly to the two protrusions shown in the figure, and secure with the two screws.

   Note: After attaching, check that the worm shaft assembly and No. 1 gear are engaged visually as shown in the figure.

7. Insert the connector (CN517) of the LD motor assembly into the HN-227 board.


LD motor assembly
Screw
Motor holder
Screw
Protrusion
Worm shaft assembly
CN517
Protrusion
LD motor gear
Worm shaft gear
Motor holder
Worm shaft assembly
No. 1 gear
Apply grease.

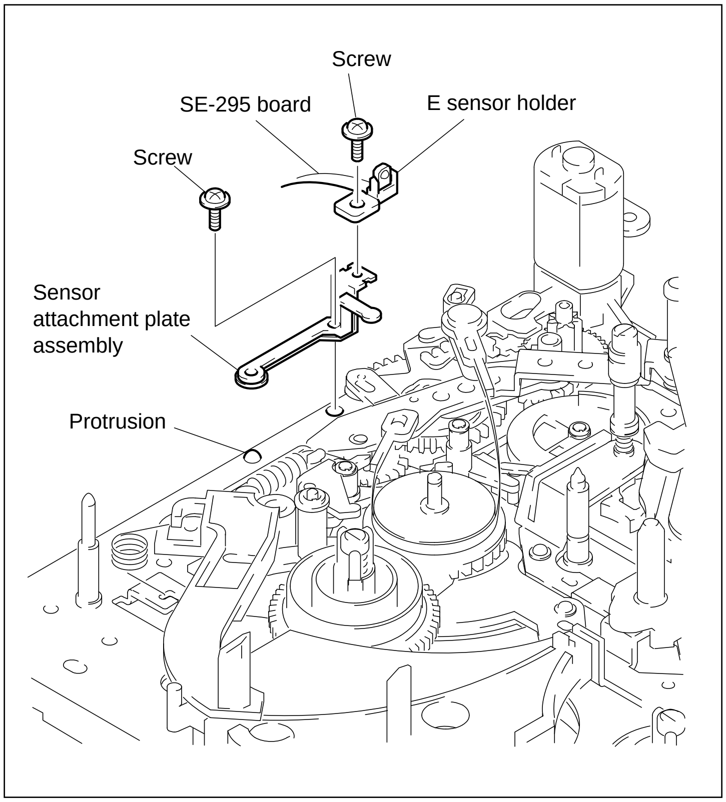
4-15. REPLACEMENT OF SENSOR ATTACHMENT PLATE ASSEMBLY

Removal

1. Remove one screw shown in the figure, and remove the E sensor holder of the SE-295 board.
2. Remove one screw and remove the sensor attachment plate assembly.

Attachment

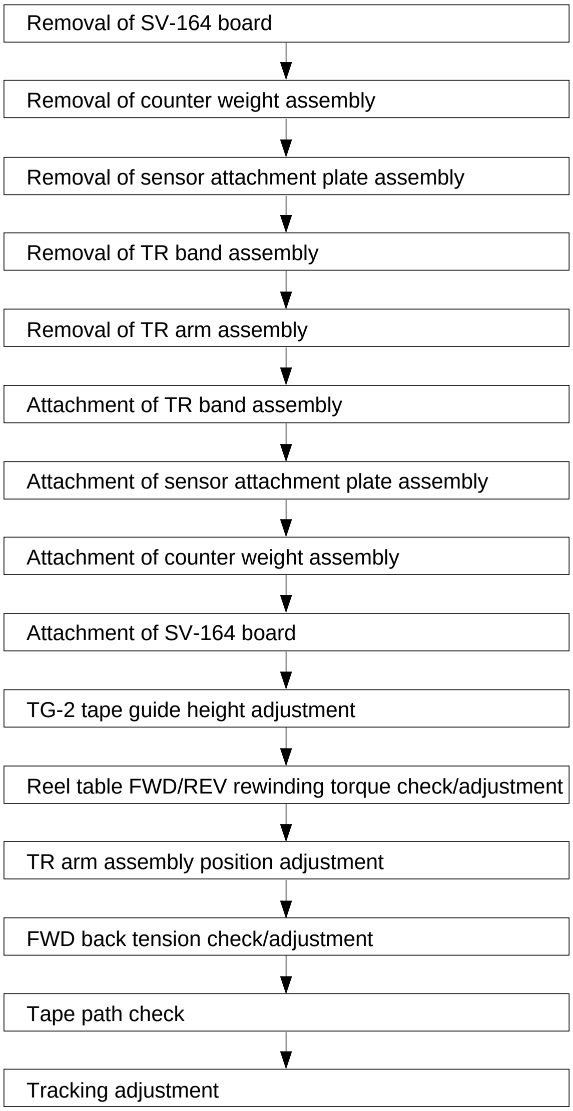
3. Adjust the new sensor attachment plate assembly to the protrusions as shown in figure, and secure with the screw.
4. Attach the E sensor holder in the reverse order of step 1.


Screw
SE-295 board
E sensor holder
Screw
Sensor attachment plate assembly
Protrusion

4-16. REPLACEMENT OF TR ARM ASSEMBLY

Mode: Threading end

Replacement flowchart


Removal of SV-164 board
Removal of counter weight assembly
Removal of sensor attachment plate assembly
Removal of TR band assembly
Removal of TR arm assembly
Attachment of TR band assembly
Attachment of sensor attachment plate assembly
Attachment of counter weight assembly
Attachment of SV-164 board
TG-2 tape guide height adjustment
Reel table FWD/REV rewinding torque check/adjustment
TR arm assembly position adjustment
FWD back tension check/adjustment
Tape path check
Tracking adjustment

Removal

1. Remove the SV-164 board. (Refer to Section 2-11-8.)
2. Remove the one screw shown in the figure, and remove the counter weight assembly.
3. Remove the sensor attachment plate assembly. (Refer to Section 4-15.)
4. Remove the TR band assembly. (Refer to Section 4-12.)
5. Remove the stopper washer of the TR arm assembly, and remove the cap holder.
6. Remove the TR arm assembly.

   Note: When removing the TR arm assembly, be sure to hold parts ⓐ and ⓑ horizontally, and the pull the TR arm assembly upwards vertically. Not pulling them horizontally may cause the following defects.

   1) Deformation of the crank arm and shaft of the TR arm assembly.
   2) Scratches on the inside of the bearing of the shaft, and a replacement TR arm assembly can not be attached.

Attachment

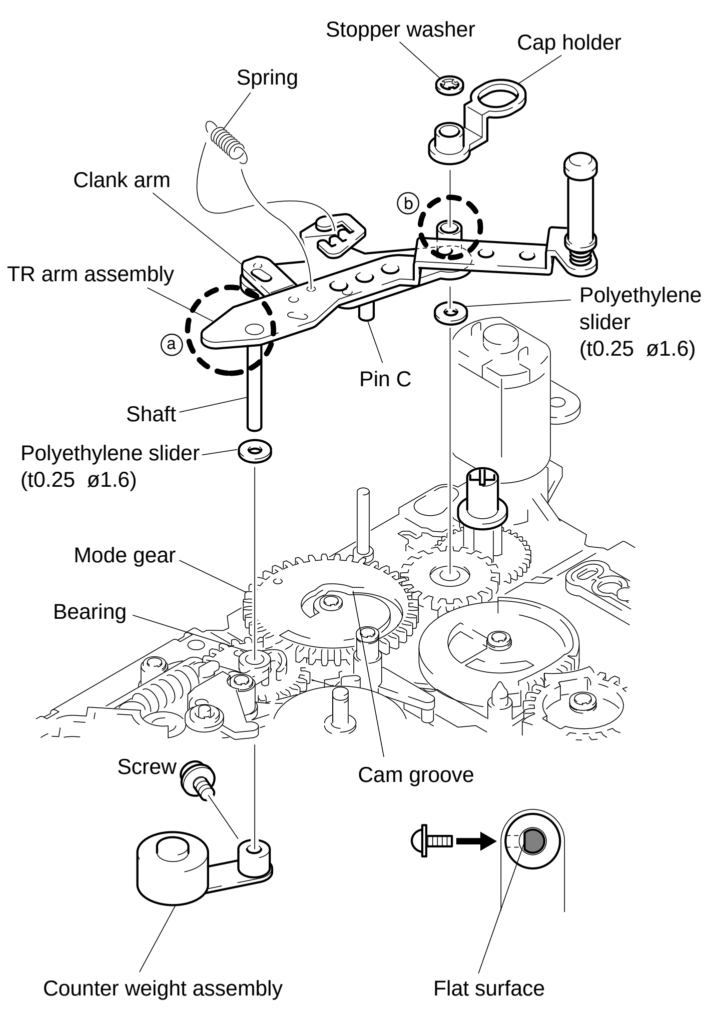
7. Insert Pin C of the TR arm assembly into the cam groove of the mode gear in the reverse order of steps 1 to 6, and insert the shaft into the bearing.

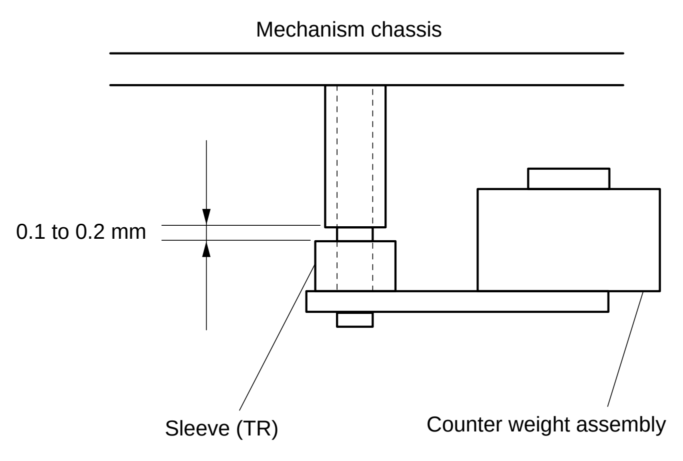
   Note: When attaching the counter weight assembly to the shaft of the TR arm assembly, take note of the following.

   1) Tighten the attaching screw at the flat part of the shaft of the TR arm assembly.
   2) Attach so that there is a clearance of 0.1 to 0.2 mm from the sleeve (TR).
8. Attach the SV-164 board. (Refer to Section 2-11-8.)

Check/Adjustment

9. Perform TG-2 tape guide height check/adjustment. (Refer to Section 4-37.)
10. Perform the reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)
11. Perform the TR arm assembly position check/adjustment. (Refer to Section 4-40.)
12. Perform FWD back tension check/adjustment. (Refer to Section 4-39.)
13. Perform tape path check. (Refer to Section 5-3.)
14. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)


Stopper washer
Cap holder
Spring
Clank arm
b
TR arm assembly
Polyethylene slider (t0.25 ø1.6)
a
Pin C
Shaft
Polyethylene slider (t0.25 ø1.6)
Mode gear
Bearing
Screw
Cam groove
Counter weight assembly
Flat surface


Mechanism chassis
0.1 to 0.2 mm
Sleeve (TR)
Counter weight assembly

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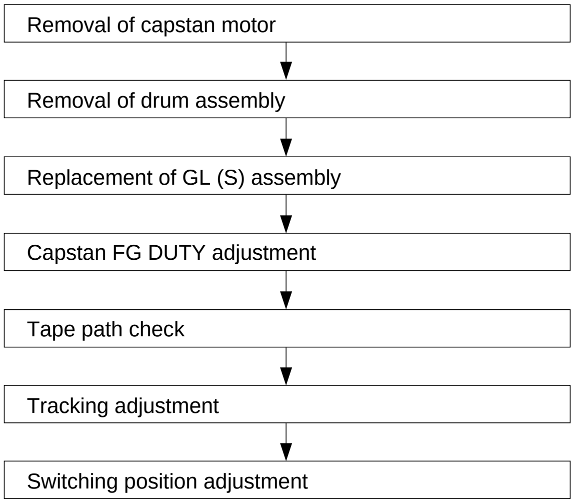
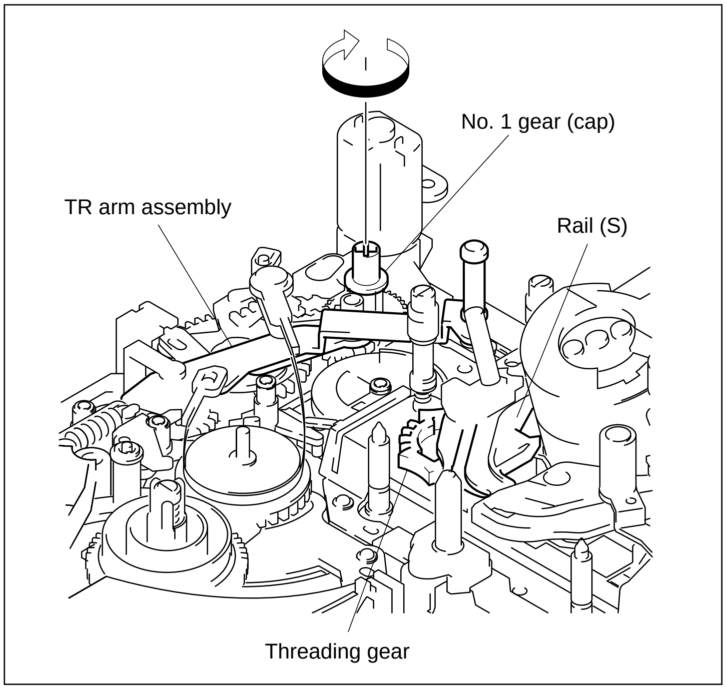
4-17. REPLACEMENT OF GL (S) ASSEMBLY

Replacement Flowchart

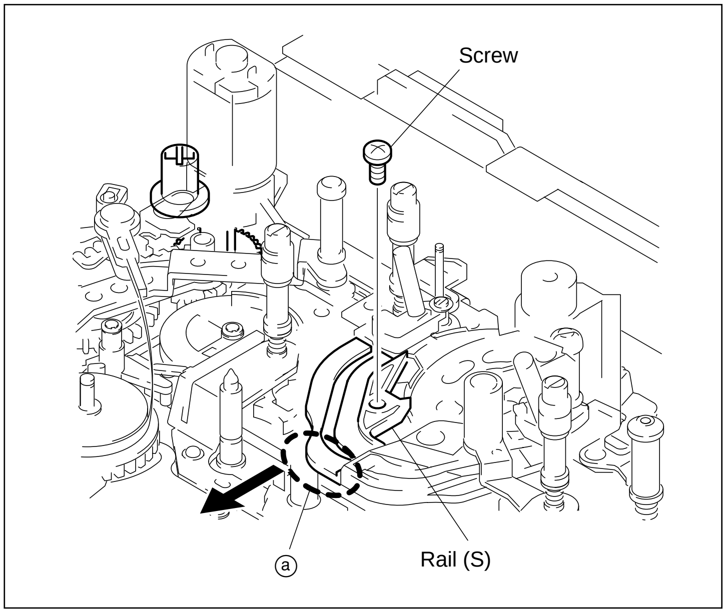

Removal of capstan motor
Removal of drum assembly
Replacement of GL (S) assembly
Capstan FG DUTY adjustment
Tape path check
Tracking adjustment
Switching position adjustment

Removal

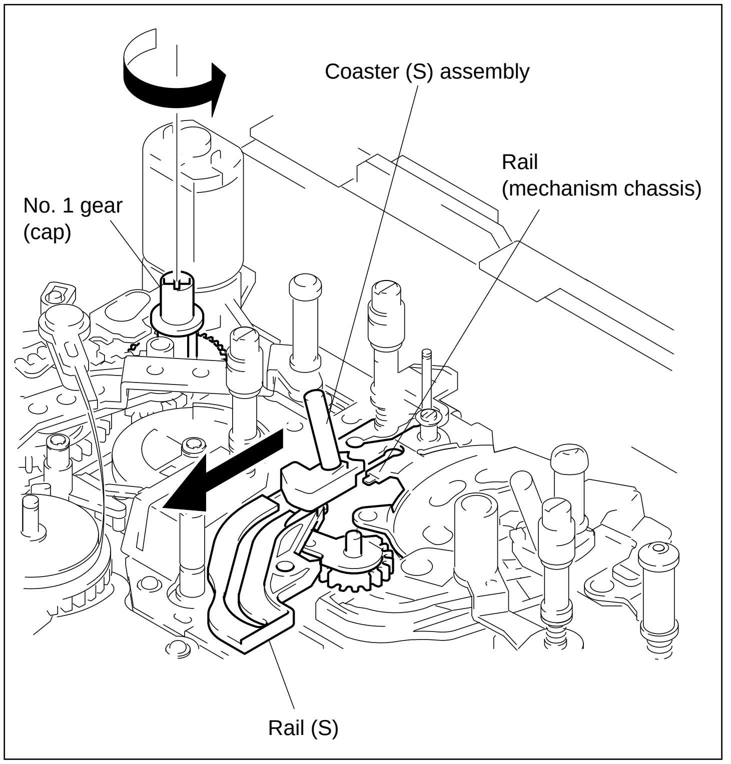
1. Remove the capstan motor.
   (Refer to Section 4-28.)
2. Remove the drum assembly.
   (Refer to Section 4-3.)
3. Rotate the No. 1 gear in the clockwise direction until the TR arm assembly separates from rail (S).


No. 1 gear (cap)
TR arm assembly
Rail (S)
Threading gear

4. Remove the screw attaching rail (S), and remove it by holding the ⓐ part and sliding it in the arrow direction.

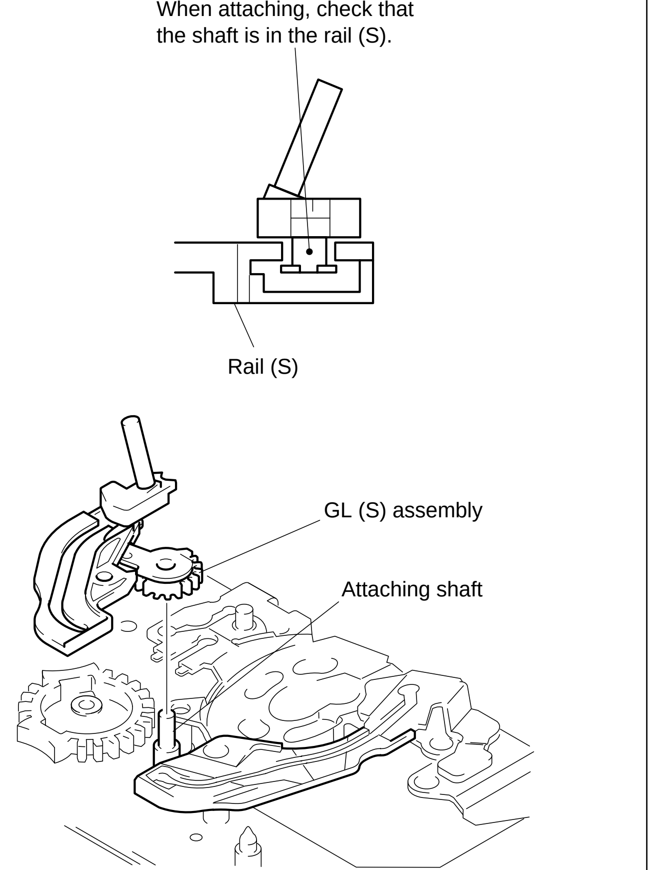

Screw
ⓐ
Rail (S)

6. Rotate the No. 1 gear in the counterclockwise direction, and remove the coaster (S) assembly and GL (S) assembly from the rail (mechanism chassis).


Coaster (S) assembly
Rail
(mechanism chassis)
No. 1 gear
(cap)
Rail (S)

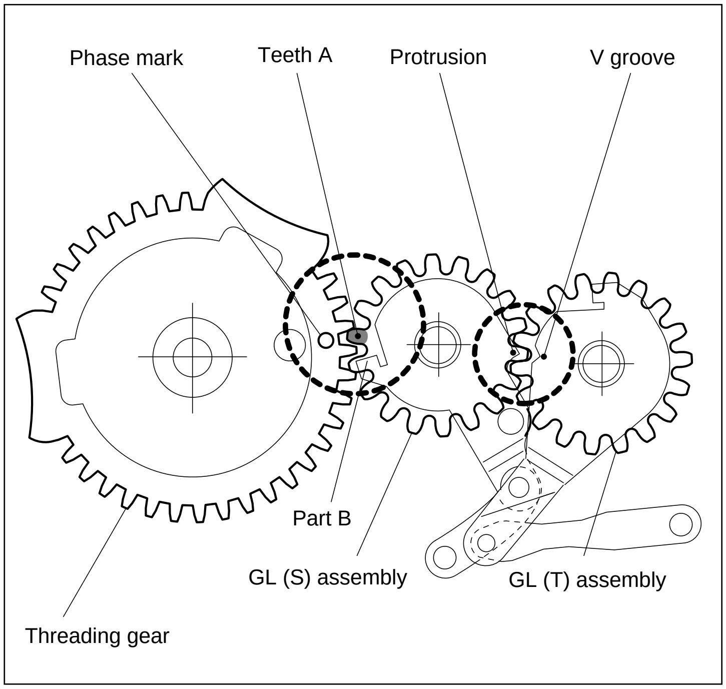
Attachment

7. Attach the coaster (S) assembly to the groove of the rail (S), and then attach the GL (S) assembly.


When attaching, check that
the shaft is in the rail (S).
Rail (S)
GL (S) assembly
Attaching shaft

8. Attach the GL (S) assembly to the attaching shaft.

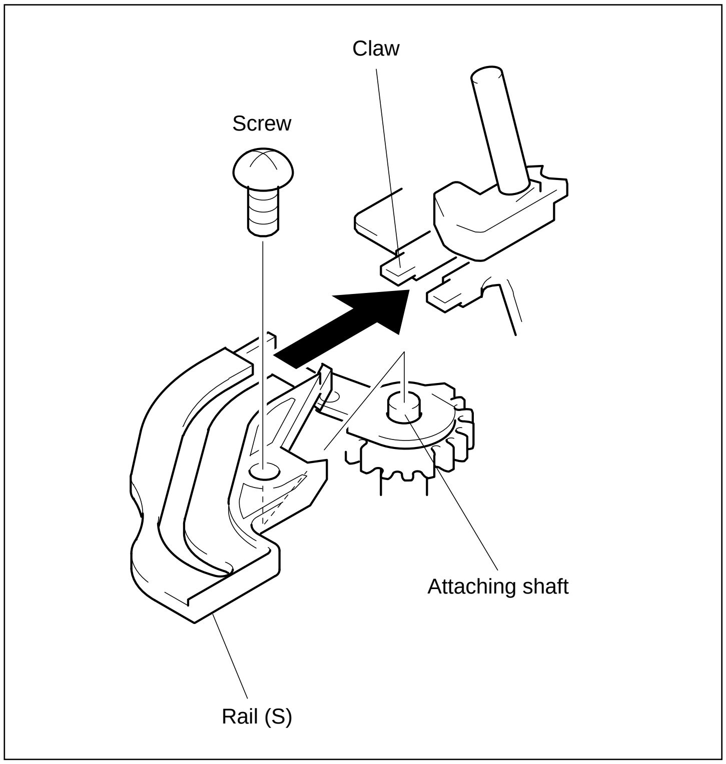
   Note: **Adjust the protrusion of the GL (S) assembly to the V groove of the GL (T) assembly as shown in the figure, and attach the threading gear so that the phase mark of the threading gear and teeth A next to part B match.**


Phase mark
Teeth A
Protrusion
V groove
Part B
GL (S) assembly
GL (T) assembly
Threading gear

9. Attach rail (S) first from the claw and then the attaching shaft, and tighten the screw.

   - Tightening torque: 0.0588 N•m (0.6 kg•cm)

10. Attach the capstan motor and drum assembly in the reverse order of steps 1 and 2.


Claw
Screw
Attaching shaft
Rail (S)

Check/Adjustment

11. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 8-1.)
12. Perform tape path check. (Refer to Section 5-3.)
13. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)
14. Perform the switching position adjustment at Menu M605. (Refer to Section 5-8.)

4-18. REPLACEMENT OF GL (T) ASSEMBLY

Replacement Flowchart

Removal of capstan motor

↓

Removal of drum assembly

↓

Replacement of GL (T) assembly

↓

Capstan FG DUTY adjustment

↓

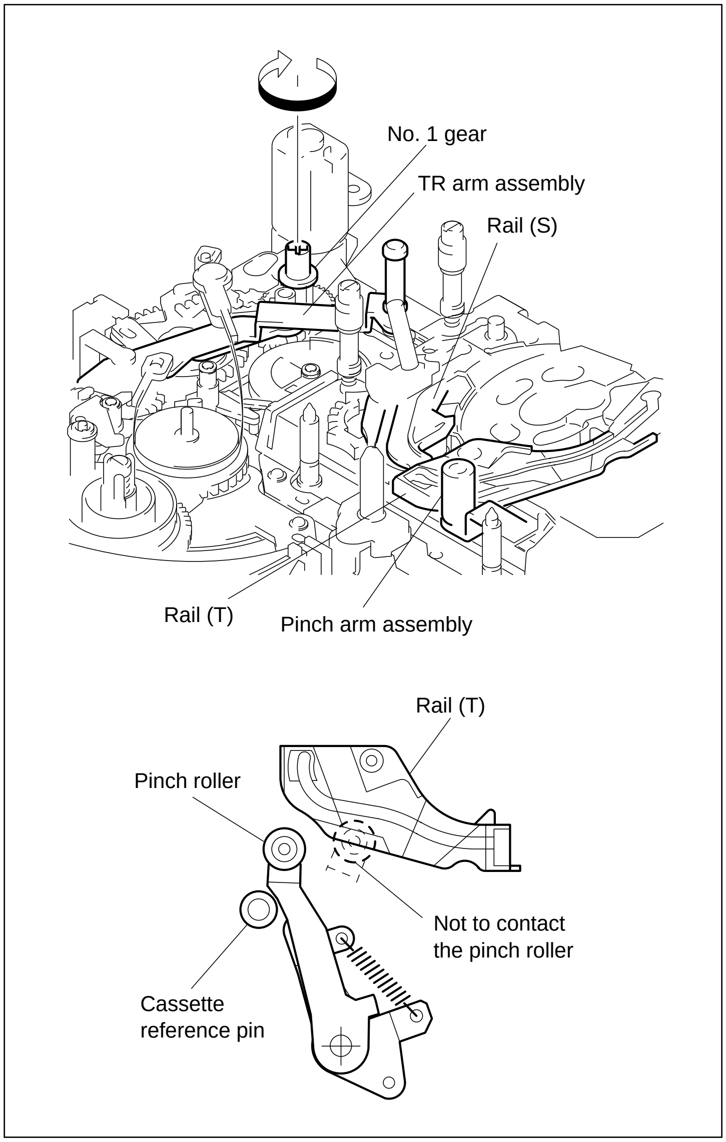
Tape path check

↓

Tracking adjustment

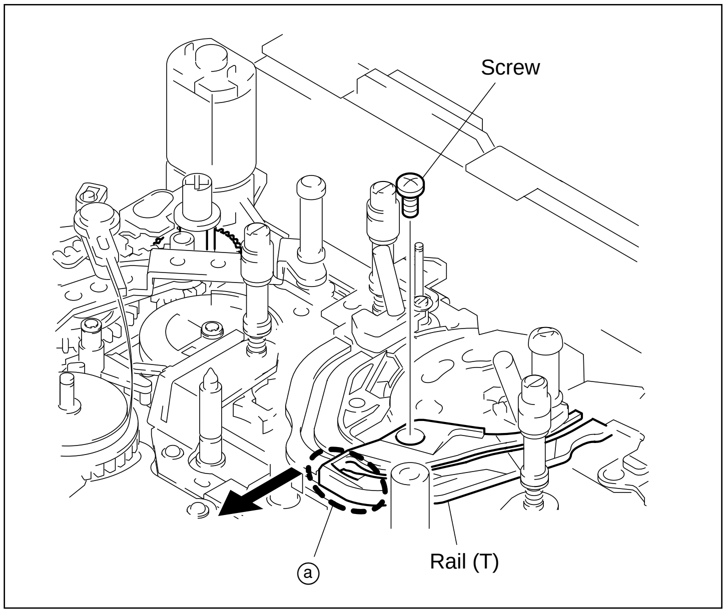
↓

Switching position adjustment

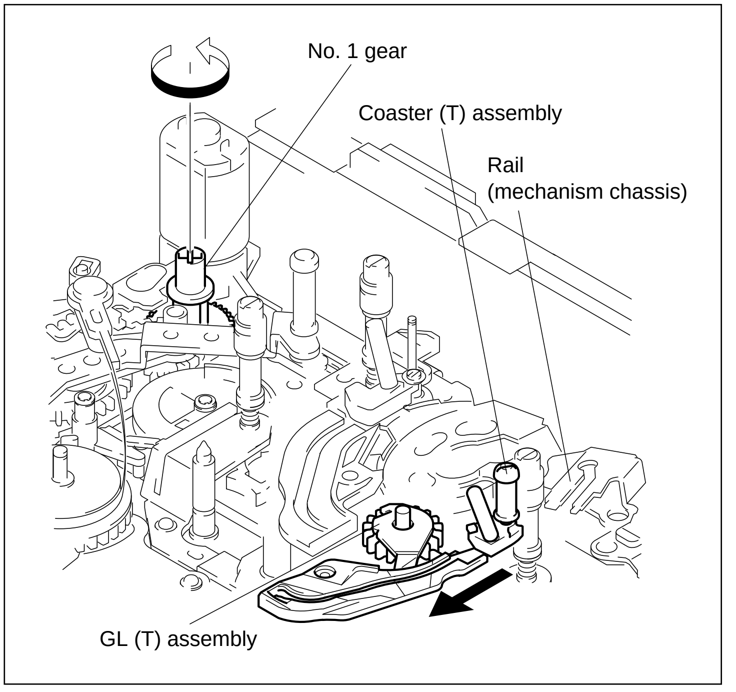

No. 1 gear
TR arm assembly
Rail (S)
Rail (T)
Pinch arm assembly
Rail (T)
Pinch roller
Not to contact
the pinch roller
Cassette
reference pin

Removal

1. Remove the capstan motor.
   (Refer to Section 4-28.)
2. Remove the drum assembly.
   (Refer to Section 4-3.)
3. Rotate the No. 1 gear in the clockwise direction, and remove the TR arm assembly from rail (S). Make sure that the pinch roller is not in contact with rail (T).
4. Remove the screw attaching rail (T), lift up part ⓐ and slide it in the arrow direction and remove rail (T).

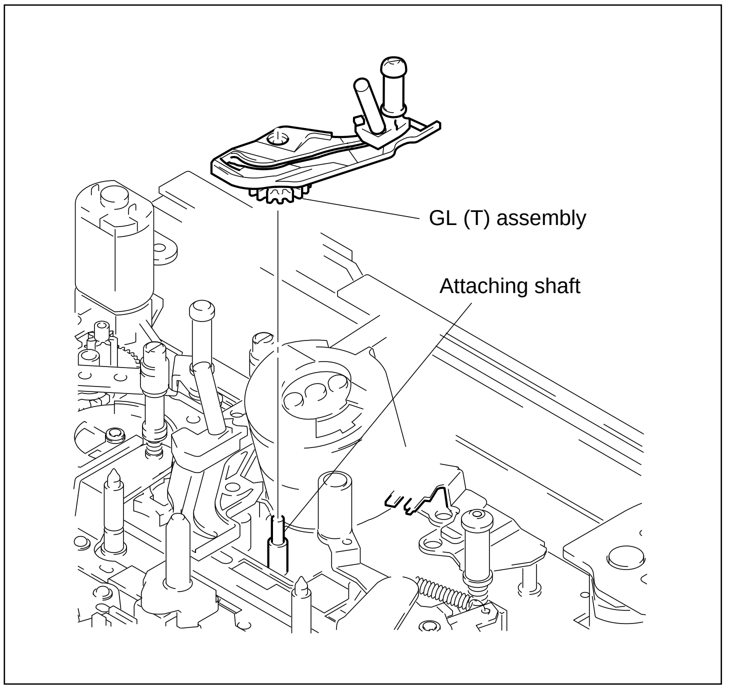

Screw
ⓐ
Rail (T)

5. Rotate the No. 1 gear in the counterclockwise direction, and remove the coaster (T) assembly and GL (T) assembly from the rail (mechanism chassis).


No. 1 gear
Coaster (T) assembly
Rail
(mechanism chassis)
GL (T) assembly

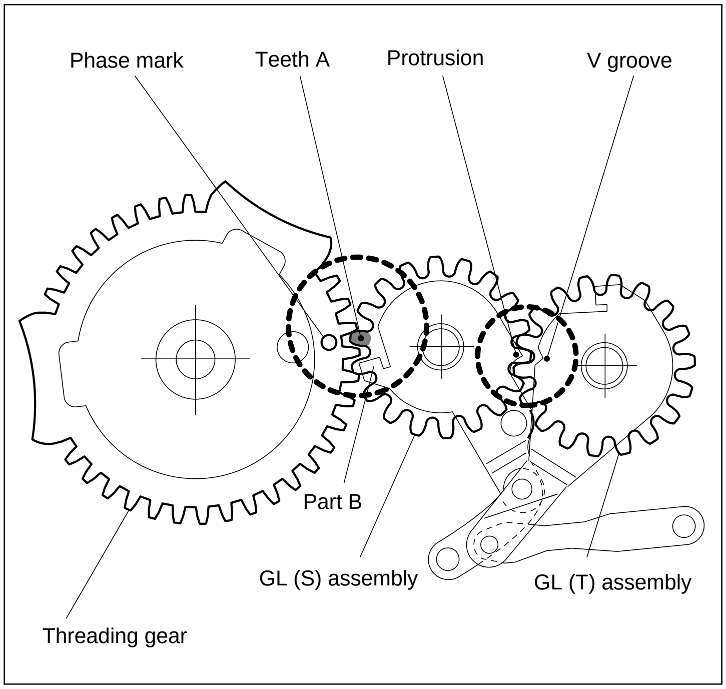
Attachment

6. Attach the coaster (T) assembly to the groove of rail (T), and then attach the GL (T) assembly.


GL (T) assembly
Attaching shaft

7. Attach the GL (T) assembly to the attaching shaft.

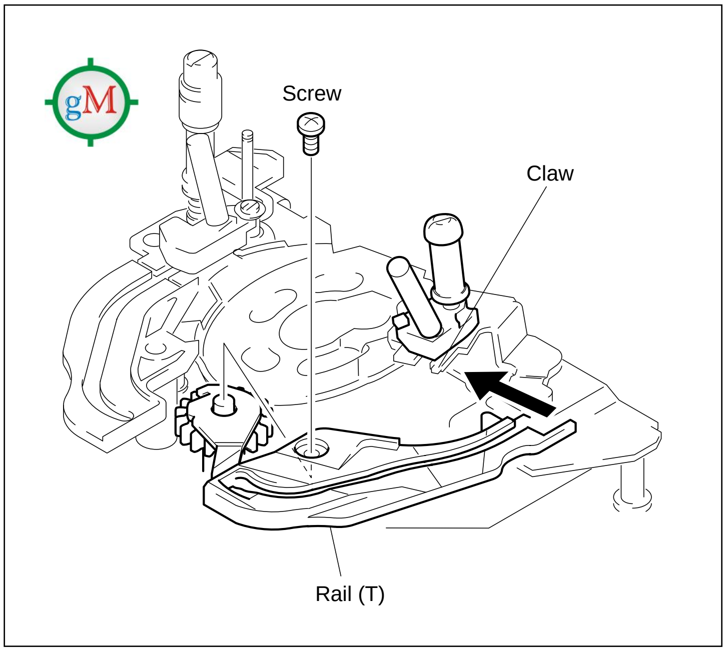
   Note: **Adjust the protrusion of the GL (S) assembly to the V groove of the GL (T) assembly as shown in the figure, and attach the threading gear so that the phase mark of the threading gear and teeth A next to part B match.**


Phase mark
Teeth A
Protrusion
V groove
Part B
GL (S) assembly
GL (T) assembly
Threading gear

8. Attach rail (T) first from the claw and then the attaching shaft, and tighten the screw.

   - Tightening torque: 0.0588 N•m (0.6 kg•cm)

9. Attach the capstan motor and drum assembly in the reverse order of steps 1 and 2.


Screw
Claw
Rail (T)

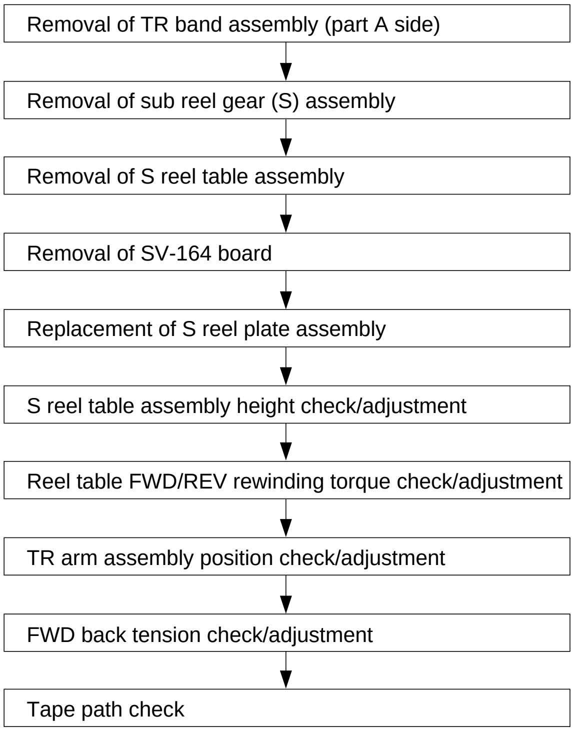
Check/Adjustment

10. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 8-1.)
11. Perform tape path check. (Refer to Section 5-3.)
12. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)
13. Perform the switching position adjustment at Menu M605. (Refer to Section 5-8.)

4-19. REPLACEMENT OF S REEL PLATE ASSEMBLY

Reel table position: Standard cassette position

Replacement Flowchart


Removal of TR band assembly (part A side)
Removal of sub reel gear (S) assembly
Removal of S reel table assembly
Removal of SV-164 board
Replacement of S reel plate assembly
S reel table assembly height check/adjustment
Reel table FWD/REV rewinding torque check/adjustment
TR arm assembly position check/adjustment
FWD back tension check/adjustment
Tape path check

Removal

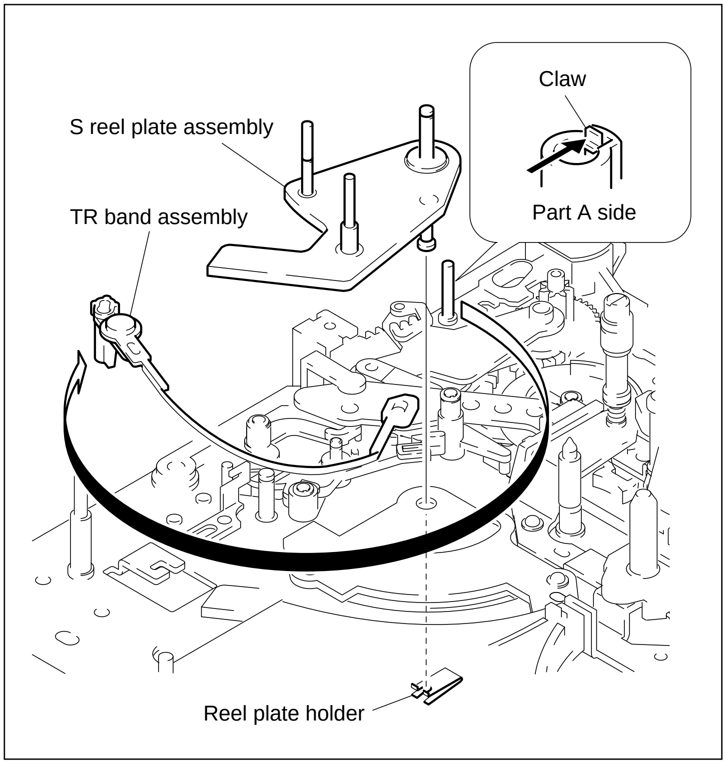
1. Remove the TR band assembly (part A side).
2. Remove the sub reel gear (S) assembly.
   (Refer to Section 4-10.)
3. Remove the S reel table assembly.
   (Refer to Section 4-4.)
4. Remove the SV-164 board.
   (Refer to Section 2-11-8.)
5. Remove the reel plate holder shown in the figure, and remove the S reel plate assembly.

Attachment

6. Attach the new S reel plate assembly in the reverse order of step 5.
7. Attach the parts removed in the reverse order of steps 1 to 4.

Check/Adjustment

8. Perform S reel table height check/adjustment. (Refer to Section 4-36.)
9. Perform the reel table assembly FWD/REV rewinding torque check/adjustment.
   (Refer to Section 4-38.)
10. Perform TR arm assembly position check/adjustment. (Refer to Section 4-40.)
11. Perform the FWD back tension check/adjustment. (Refer to Section 4-39.)
12. Perform tape path check. (Refer to Section 5-3.)


Claw
S reel plate assembly
Part A side
TR band assembly
Reel plate holder

4-20. REPLACEMENT OF T REEL PLATE ASSEMBLY

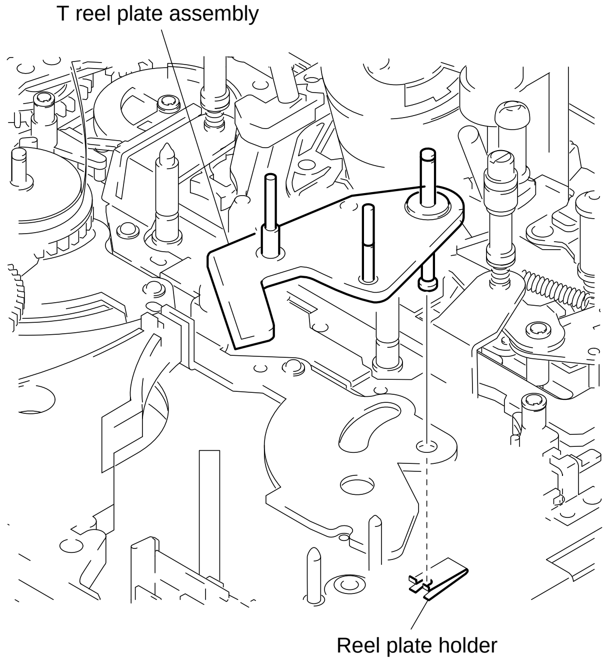
Reel table position: Standard cassette position

Replacement Flowchart

Removal of sub reel gear (T) assembly
↓
Removal of T reel table assembly
↓
Removal of SV-164 board
↓
Replacement of T reel plate assembly
↓
T reel table height check/adjustment
↓
Reel table assembly FWD/REV rewinding torque check/adjustment
↓
Tape path check

Removal

1. Remove the sub reel gear (T) assembly.
   (Refer to Section 4-11.)
2. Remove the T reel table assembly.
   (Refer to Section 4-5.)
3. Remove the SV-164 board.
   (Refer to Section 2-11-8.)
4. Remove the reel plate holder shown in the figure, and remove the T reel plate assembly.



Attachment

5. Attach the new T reel plate assembly in the reverse order of step 4.
6. Attach the parts removed in the reverse order of steps 1 to 3.

Check/Adjustment

7. Perform T reel table height check/adjustment.
   (Refer to Section 4-36.)
8. Perform the reel table assembly FWD/REV rewinding torque check/adjustment.
   (Refer to Section 4-38.)
9. Perform tape path check. (Refer to Section 5-3.)

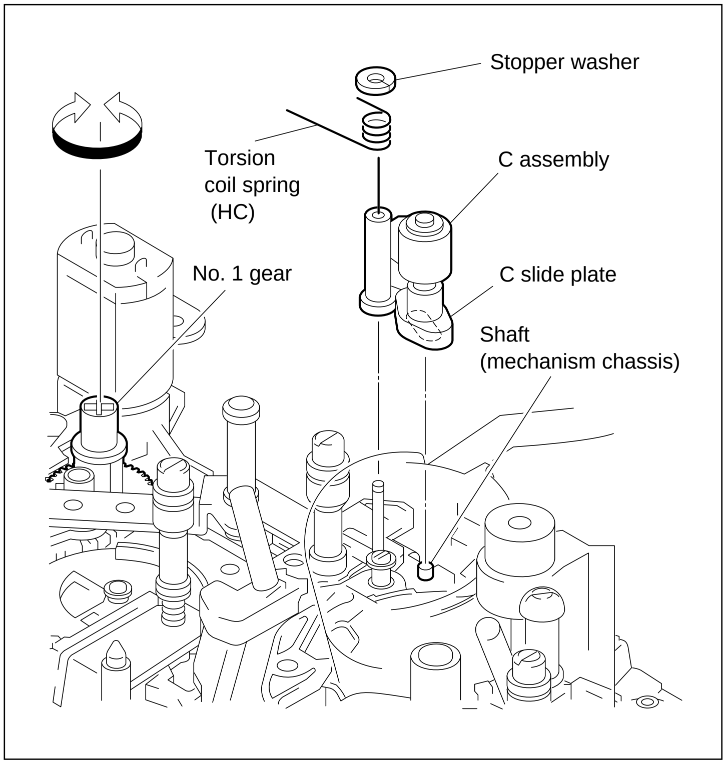
4-21. REPLACEMENT OF C ASSEMBLY

Removal/Attachment

1. Remove the stopper washer shown in the figure, and remove the C assembly and torsion coil spring (HC).
2. Attach the new C assembly and torsion coil spring (HC) with the stopper washer.

   Note: When attaching, check that the shaft of the mechanism chassis is inserted into the long hole of the C slide plate.

3. Rotate the No. 1 gear, and check that the C assembly moves to the left and right.


Stopper washer
Torsion coil spring (HC)
C assembly
No. 1 gear
C slide plate
Shaft (mechanism chassis)

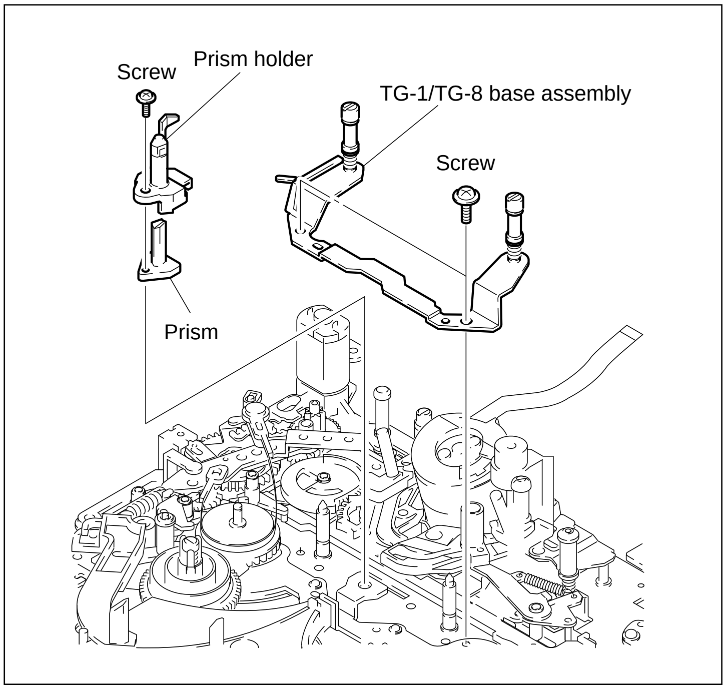
4-22. REPLACEMENT OF PINCH ARM ASSEMBLY

Reel table position: Standard cassette position
Mode: Unthreading end

Removal

1. Remove one screw shown in the figure, and remove the prism holder and prism.
2. Check that the S reel table and T reel table are at the standard cassette position, and remove the two screws shown in the figure, and remove the TG-1/TG-8 base assembly.

   Note: When removing the TG-1/TG-8 base assembly, hold the base instead of the guide.


Screw
Prism holder
TG-1/TG-8 base assembly
Screw
Prism

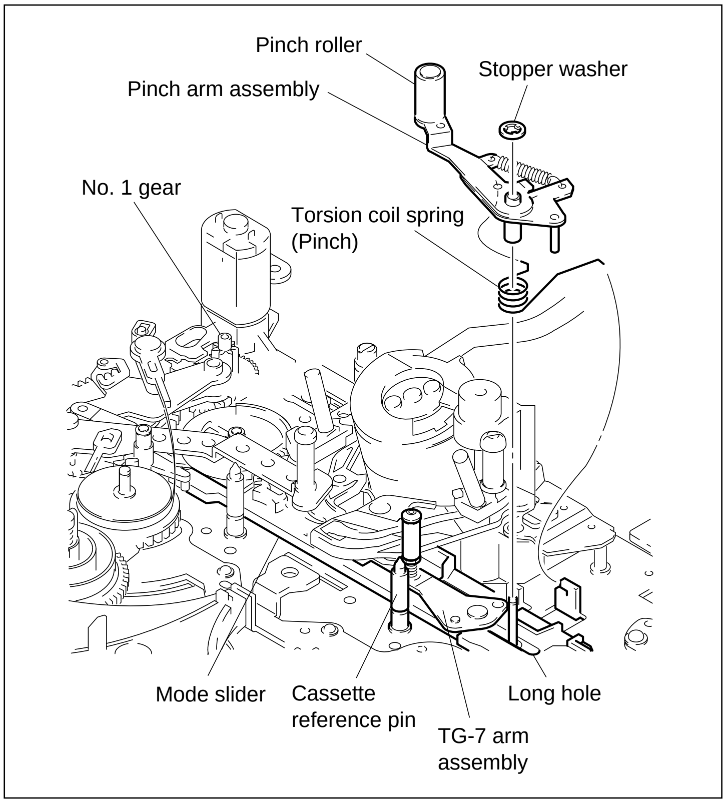
3. Remove the stopper washer, and remove the pinch arm assembly and torsion coil spring (pinch).

Attachment

4. Set the new pinch arm assembly between the cassette reference pin and TG-7 arm assembly, and attach to the unit with the torsion coil spring (pinch) using the stopper washer.

   Note: When attaching, never touch the pinch roller.

5. Attach the parts removed in the reverse order of steps 1 to 3.
6. Rotate the No. 1 gear in the clockwise and counterclockwise direction, and check that the pinch arm moves smoothly.
7. Perform TG-1/TG-8 tape guide height check/adjustment. (Refer to Section 4-37.)
8. Perform tape path check. (Refer to Section 5-3.)
9. Perform tracking adjustment.
   (Refer to Sections 5-4 to 5-7.)


Pinch roller
Stopper washer
Pinch arm assembly
No. 1 gear
Torsion coil spring
(Pinch)
Mode slider
Cassette
reference pin
Long hole
TG-7 arm
assembly

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4-23. REPLACEMENT OF TG-1/TG-8 GUIDE ASSEMBLY COMPONENT PARTS

The TG-1 guide assembly and TG-8 guide assembly component parts can be replaced in the same way. This section explains how to replace the TG-1 guide assembly component parts.

Replacement Flowchart

Replacement of TG-1/TG-8 guide assembly component parts

↓

TG-1/TG-8 guide height check/adjustment

↓

Tape path check

↓

Tracking adjustment

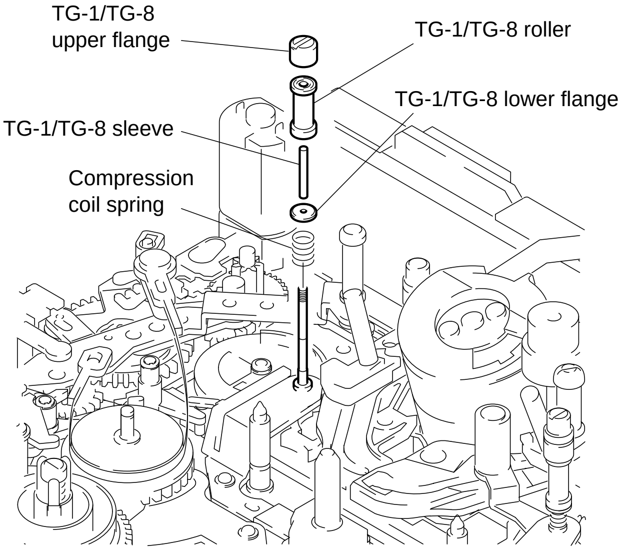
Removal/Attachment

1. Rotate the guide upper flange shown in the figure in the counterclockwise direction, and remove the TG-1 guide assembly component parts.
2. Replace the required parts, and attach the component parts in the reverse order of step 1.
3. Perform TG-1 guide height check. (Refer to Section 4-37.)

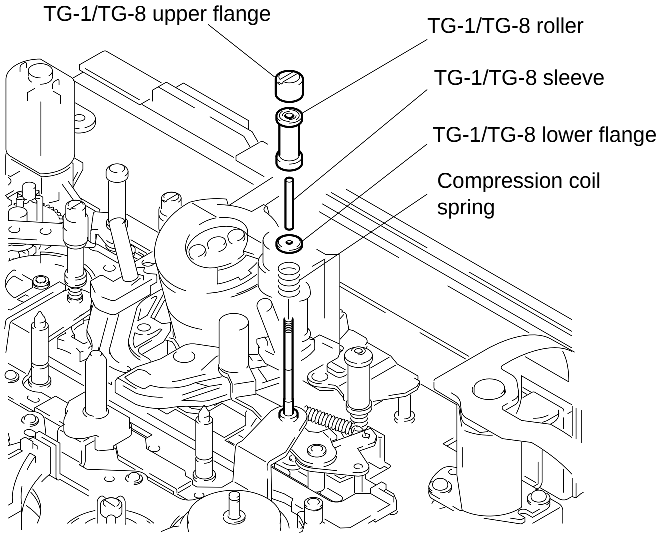
Check/Adjustment

4. Perform tape path check. (Refer to Section 5-3.)
5. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)

TG-1 guide assembly component parts

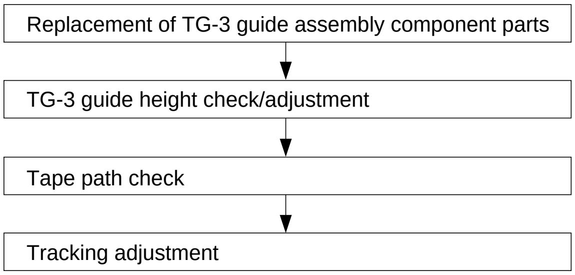

TG-1/TG-8 upper flange
TG-1/TG-8 roller
TG-1/TG-8 lower flange
TG-1/TG-8 sleeve
Compression coil spring

TG-8 guide assembly component parts


TG-1/TG-8 upper flange
TG-1/TG-8 roller
TG-1/TG-8 sleeve
TG-1/TG-8 lower flange
Compression coil spring

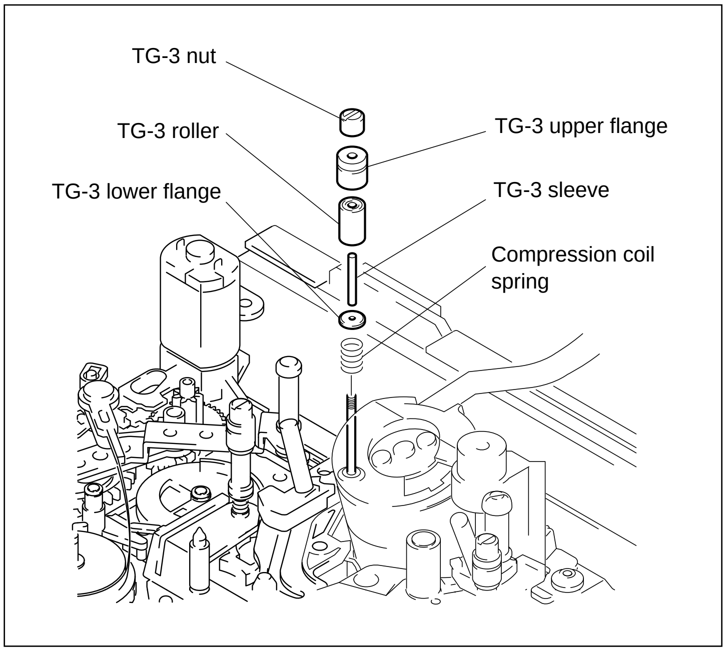
4-24. REPLACEMENT OF TG-3 GUIDE ASSEMBLY COMPONENT PARTS

Replacement Flowchart


Replacement of TG-3 guide assembly component parts
TG-3 guide height check/adjustment
Tape path check
Tracking adjustment

Removal/Attachment

1. Rotate the guide upper flange shown in the figure in the counterclockwise direction, and remove the TG-3 guide assembly component parts.
2. Replace the required parts, and attach the component parts in the reverse order of step 1.


TG-3 nut
TG-3 roller
TG-3 upper flange
TG-3 lower flange
TG-3 sleeve
Compression coil spring

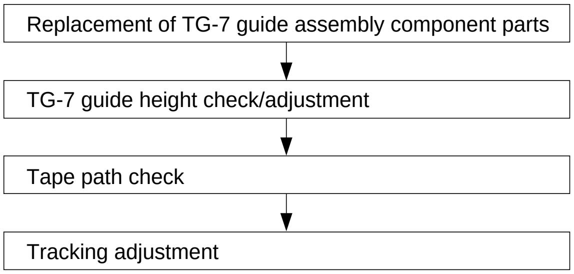
Check/Adjustment

3. Perform TG-3 guide height check. (Refer to Section 4-37.)
4. Perform tape path check. (Refer to Section 5-3.)
5. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)

4-25. REPLACEMENT OF TG-7 GUIDE ASSEMBLY COMPONENT PARTS

Mode: Threading end

Replacement Flowchart



Replacement of TG-7 guide assembly component parts

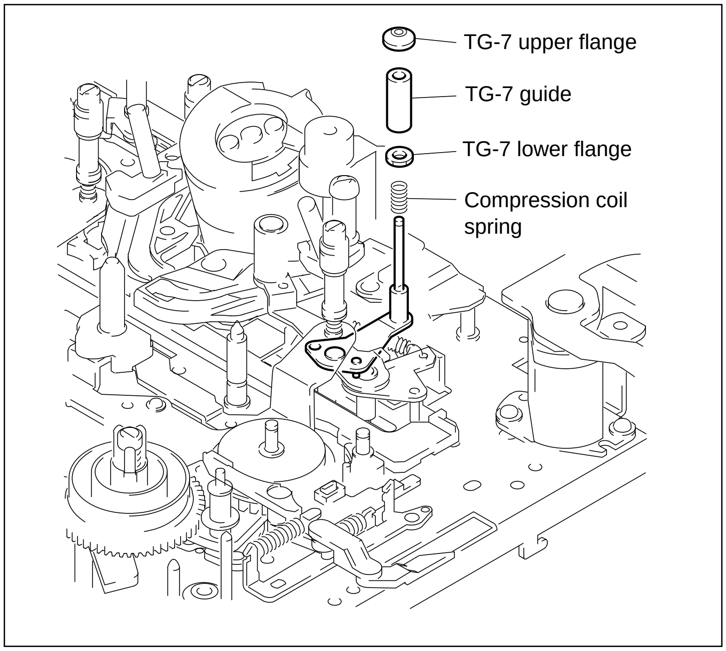
TG-7 guide height check/adjustment

Tape path check

Tracking adjustment

Removal/Attachment

1. Rotate the TG-7 upper flange shown in the figure in the counterclockwise direction, and remove the TG-7 guide assembly component parts.
2. Replace the required parts, and attach the component parts in the reverse order of step 1.



Check/Adjustment

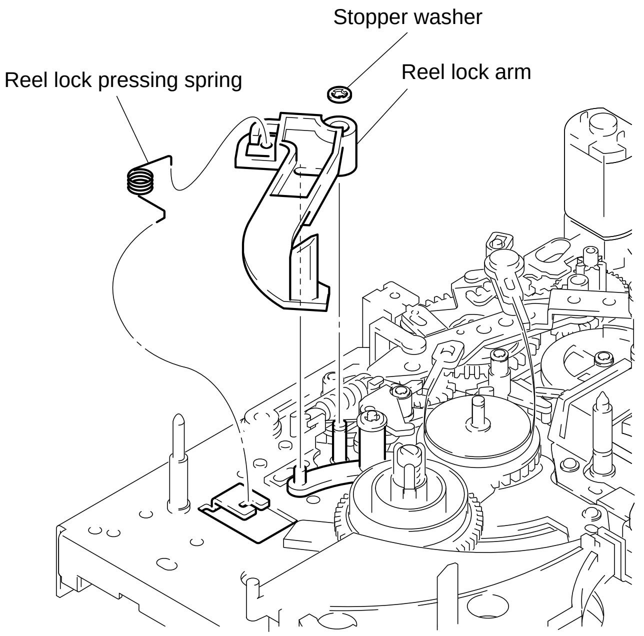
3. Perform TG-7 guide height check/adjustment. (Refer to Section 4-37.)
4. Perform tape path check. (Refer to Section 5-3.)
5. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)

4-26. REPLACEMENT OF IDLER GEAR ASSEMBLY

Reel table position: Standard cassette position
Mode: Threading end

Removal

1. Remove the reel lock pressing spring and stopper washer shown in the figure, and remove the reel lock arm.

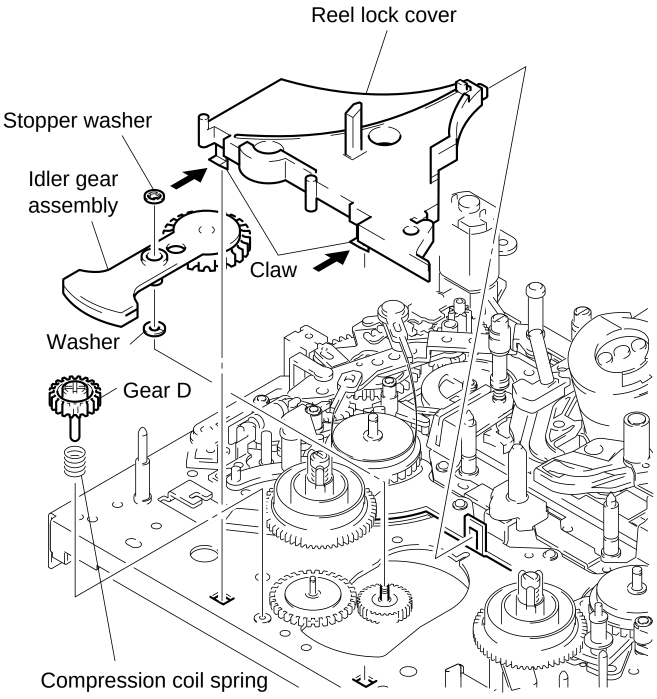

Stopper washer
Reel lock pressing spring
Reel lock arm

2. While pushing in the two claws in the arrow direction, remove the reel lock cover.

   Note: **When the reel lock cover is removed, gear D and the compression coil spring will also be removed with it. Be careful not to lose them.**

3. Remove the stopper washer shown in the figure, and remove the idler gear assembly.

   Note: **When the idler gear assembly is removed, the washer shown in the figure will also be removed with it. Be careful not to lose the washer.**


Reel lock cover
Stopper washer
Idler gear assembly
Claw
Washer
Gear D
Compression coil spring

Attachment

4. Attach the new idler gear assembly in the reverse order of step 3.
5. Attach the parts removed in the reverse order of steps 1 and 2.

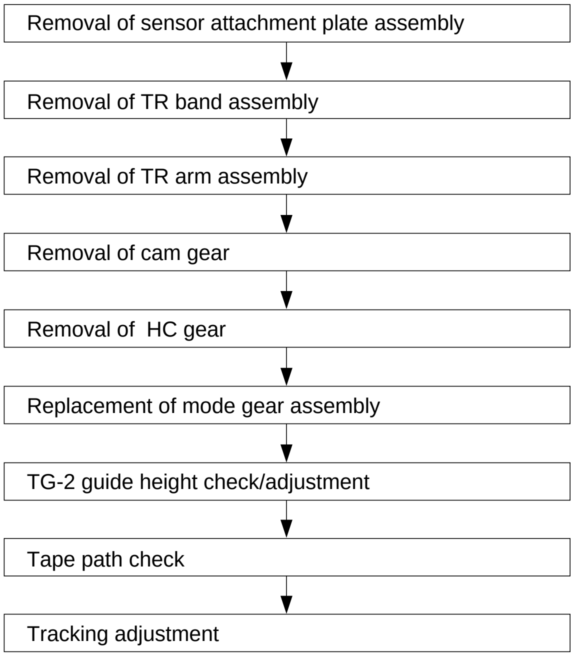
Check/Adjustment

6. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)

4-27. REPLACEMENT OF MODE GEAR ASSEMBLY

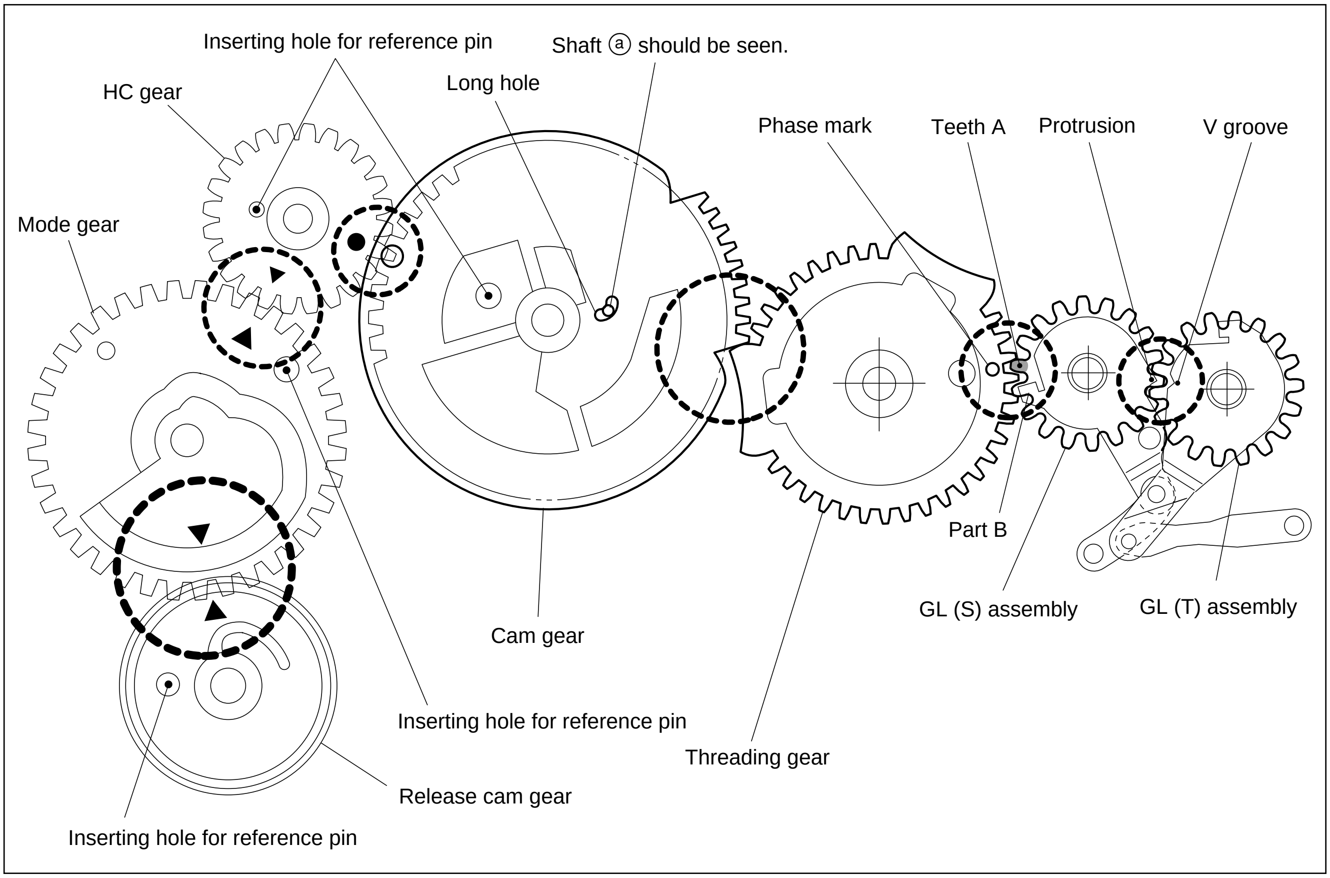
Reel table position: Standard cassette position

Replacement Flowchart


Removal of sensor attachment plate assembly
Removal of TR band assembly
Removal of TR arm assembly
Removal of cam gear
Removal of HC gear
Replacement of mode gear assembly
TG-2 guide height check/adjustment
Tape path check
Tracking adjustment

Removal

1. Remove the sensor attachment plate assembly. (Refer to Section 4-15.)
2. Remove the TR band assembly. (Refer to Section 4-12.)
3. Remove the TR arm assembly. (Refer to Section 4-16.)
4. Rotate No. 1 gear in the counterclockwise direction to set it in the unthreading condition.
5. Insert the reference pin at the position shown in the figure, and adjust the phase of each gear.
6. Remove the cam gear.
7. Remove the HC gear.


Inserting hole for reference pin
Shaft ⓐ should be seen.
HC gear
Long hole
Phase mark
Teeth A
Protrusion
V groove
Mode gear
Part B
GL (S) assembly
GL (T) assembly
Cam gear
Inserting hole for reference pin
Threading gear
Release cam gear
Inserting hole for reference pin

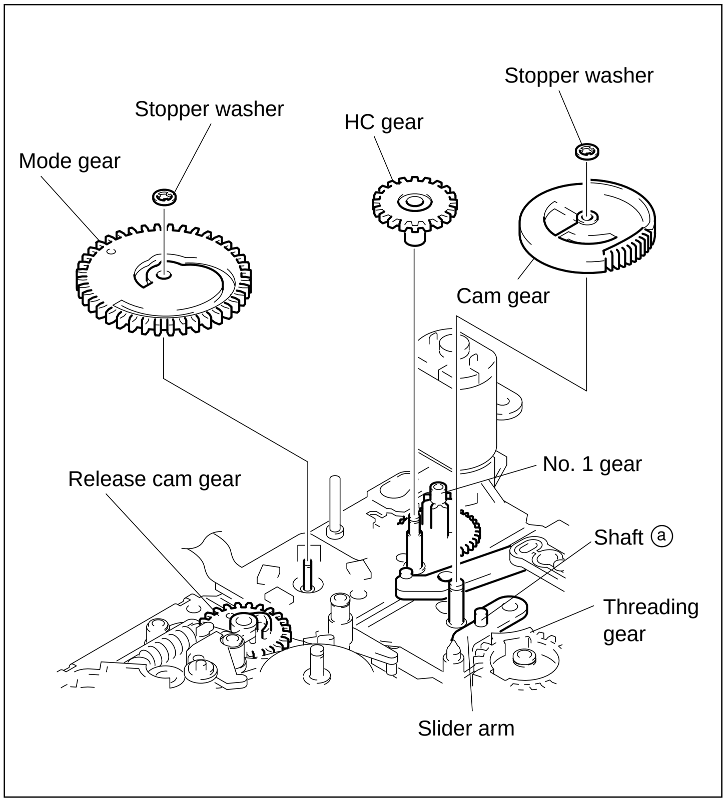
6. Remove the stopper washer shown in the figure, and remove the mode gear assembly.

Attachment

7. Attach the new mode gear assembly in the reverse order of step 6.

   Note: Insert the reference pin into the hole of the mode gear when attaching, and adjust the phase.

   1) Adjust the protrusion of the GL (S) assembly to the V groove of the GL (T) assembly as shown in the figure, and attach the threading gear so that the phase mark of the threading gear and teeth A next to part B match.
   2) Match the phases of the cam gear and threading gear, and check that shaft ⓐ of the slider arm can be seen from the long hole of the cam gear.
8. Pull out the reference pin.
9. Attach the parts removed in the order steps 7, 6, 3, 2, 1.


Stopper washer
Stopper washer
HC gear
Mode gear
Cam gear
No. 1 gear
Release cam gear
Shaft ⓐ
Threading gear
Slider arm

Check/Adjustment

10. Perform TG-2 guide height check/adjustment. (Refer to Section 4-37.)
11. Perform the tape path check. (Refer to Section 5-3.)
12. Perform tracking adjustment. (Refer to Sections 5-4 to 5-7.)

4-28. REPLACEMENT OF CAPSTAN MOTOR

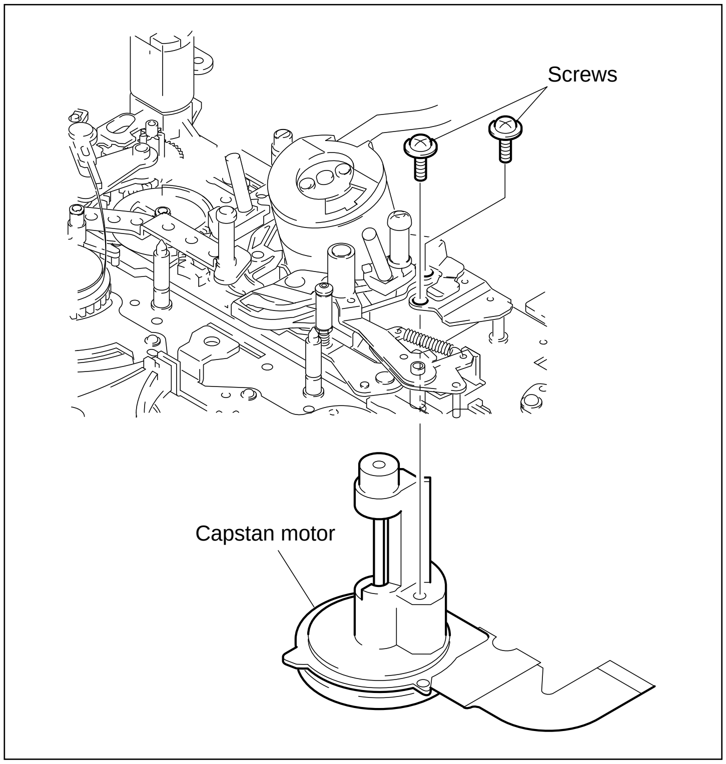
Mode: Unthreading end

Replacement Flowchart

Removal of SV-164 board
↓
Removal of HN-227 board
↓
Replacement of capstan motor
↓
Capstan FG DUTY adjustment
↓
Tape path check
↓
Tracking adjustment

Removal

1. Remove the SV-164 board.
   (Refer to Section 2-11-8.)
2. Remove the HN-227 board.
   (Refer to Section 2-11-9.)
3. Remove the two screws shown in the figure, and remove the capstan motor.



Attachment

4. Attach the new capstan motor in the reverse order of step 3.
5. Attach the parts removed in the reverse order of steps 1 and 2.

Check/Adjustment

6. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 8-1.)
7. Perform the tape path check.
   (Refer to Section 5-3.)
8. Perform tracking adjustment.
   (Refer to Sections 5-4 to 5-7.)

4-29. REPLACEMENT OF MODE SLIDER

Mode: Unthreading end

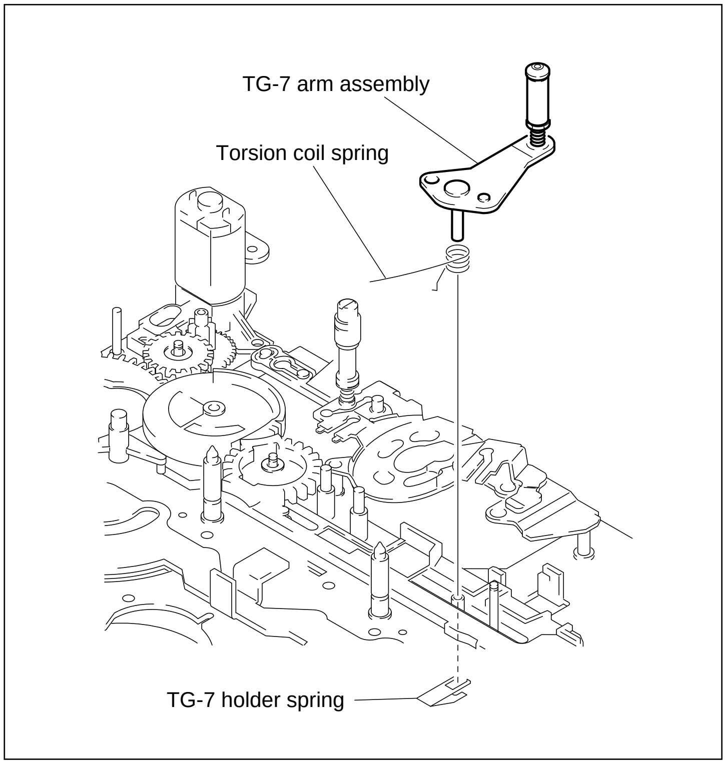
Replacement Flowchart

Removal of SV-164 board
↓
Removal of HN-227 board
↓
Removal of capstan motor
↓
Removal of drum assembly
↓
Removal of counter weight assembly
↓
Removal of soft brake arm (S)
↓
Removal of sensor attachment plate
↓
Removal of TR band assembly
↓
Removal of TR arm assembly
↓
Removal of prism holder
↓
Removal of TG-1/TG-8 base assembly
↓
Removal of pinch arm assembly
↓
Removal of GL (S) assembly
↓
Removal of GL (T) assembly
↓
Replacement of mode slider assembly
↓
Tape guide height check/adjustment
↓
Capstan FG DUTY adjustment
↓
Reel table FWD/REV rewinding torque check/adjustment
↓
TR arm assembly position check/adjustment
↓
FWD back tension check/adjustment
↓
Tape path check
↓
Tracking adjustment
↓
Switching position adjustment

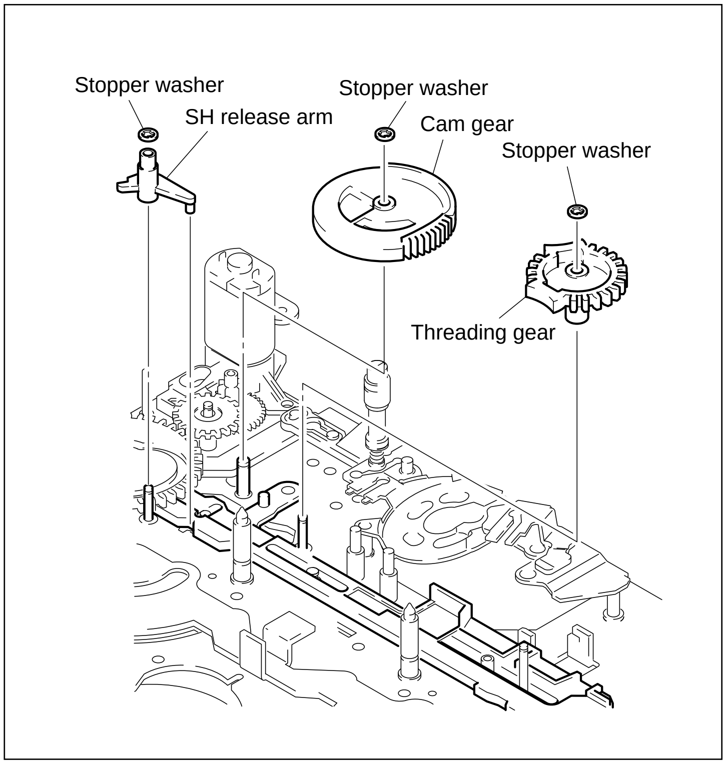
Removal

1. Remove the SV-164 board. (Refer to Section 2-11-8.)
2. Remove the HN-227 board. (Refer to Section 2-11-9.)
3. Remove the capstan motor. (Refer to Section 4-28.)
4. Remove the drum assembly. (Refer to Section 4-3.)
5. Remove the counter weight assembly. (Refer to Section 4-16.)
6. Remove the soft brake arm (S). (Refer to Section 4-6.)
7. Remove the sensor attachment plate. (Section 4-15.)
8. Remove the TR band assembly. (Refer to Section 4-12.)
9. Remove the TR arm assembly. (Refer to Section 4-16.)
10. Remove the prism holder. (Refer to Section 4-22.)
11. Remove the TG-1/TG-8 base assembly. (Refer to Section 4-22.)
12. Remove the pinch arm assembly. (Refer to Section 4-22.)
13. Remove the GL (S) assembly. (Refer to Section 4-17.)
14. Remove the GL (T) assembly. (Refer to Section 4-18.)

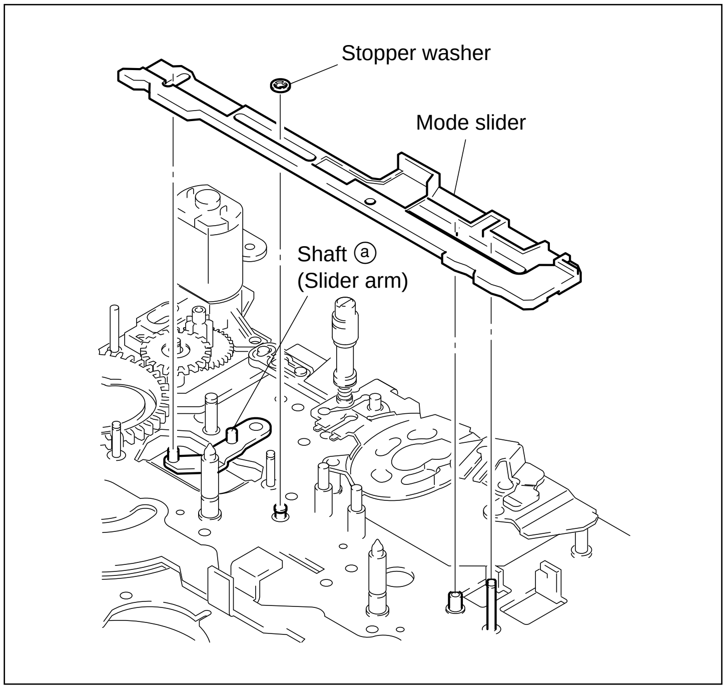
15. Remove the TG-7 holder spring, and remove the TG-7 arm assembly and torsion coil spring.


TG-7 arm assembly
Torsion coil spring
TG-7 holder spring

16. Remove the stopper washer, and remove the SH release arm.
17. Remove the stopper washer, and remove the threading gear.
18. Remove the stopper washer, and remove the cam gear.


Stopper washer
Stopper washer
SH release arm
Cam gear
Stopper washer
Threading gear

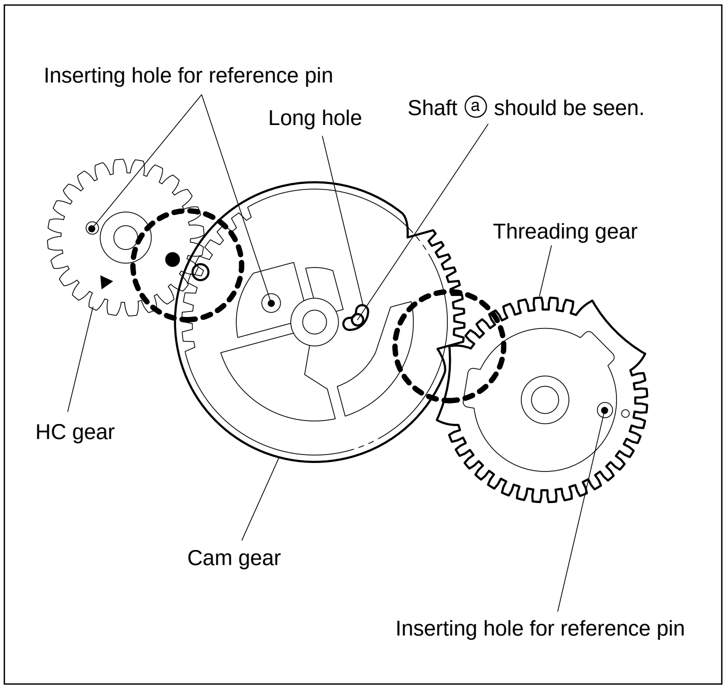
19. Remove the stopper washer shown in the figure, and remove the mode slider.


Stopper washer
Mode slider
Shaft ⓐ
(Slider arm)

Attachment

20. Attach the new mode slider in the reverse order of step 19.
21. Attach the parts removed in the reverse order of steps 1 to 18.

22. Adjust the phase as follows.
    1) When attaching the cam gear and threading gear, insert the reference pin into the hole of each gear shown in the figure, and adjust the phase.
    2) At the same time, make sure that shaft ⓐ of the slider arm should be seen from the long hole of the cam gear.


Inserting hole for reference pin
Long hole
Shaft ⓐ should be seen.
Threading gear
HC gear
Cam gear
Inserting hole for reference pin

Adjustment

23. Perform tape guide height check/adjustment. (Refer to Section 4-37.)
24. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 8-1.)
25. Perform REV rewinding torque check/ adjustment. (Refer to Section 4-38.)
26. Perform TR arm assembly position check/ adjustment. (Refer to Section 4-40.)
27. Perform FWD back tension check/ adjustment.(Refer to Section 4-39.)
28. Perform tape path check. (Refer to Section 5-3.)
29. Perform tracking adjustment.
(Refer to Sections 5-4 to 5-7.)
30. Perform switching position adjustment.
(Refer to Section 5-8.)

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4-30. REPLACEMENT OF REEL MOTOR

Reel table position: Standard cassette position
Mode: Unthreading end

Replacement Flowchart

Removal of SV-164 board
↓
Removal of Idler gear assembly
↓
Replacement of reel motor
↓
Reel FG DUTY adjustment
↓
Reel table FWD/REV rewinding torque check/adjustment

Removal

1. Remove the SV-164 board.
   (Refer to Section 2-11-8.)
2. Remove the idler gear assembly.
   (Refer to Section 4-26.)
3. Remove the three screws, and remove the reel motor.

Note: **When the reel motor is removed, the washer shown in the figure will also be removed with it. Be careful not to lose the washer.**

Attachment

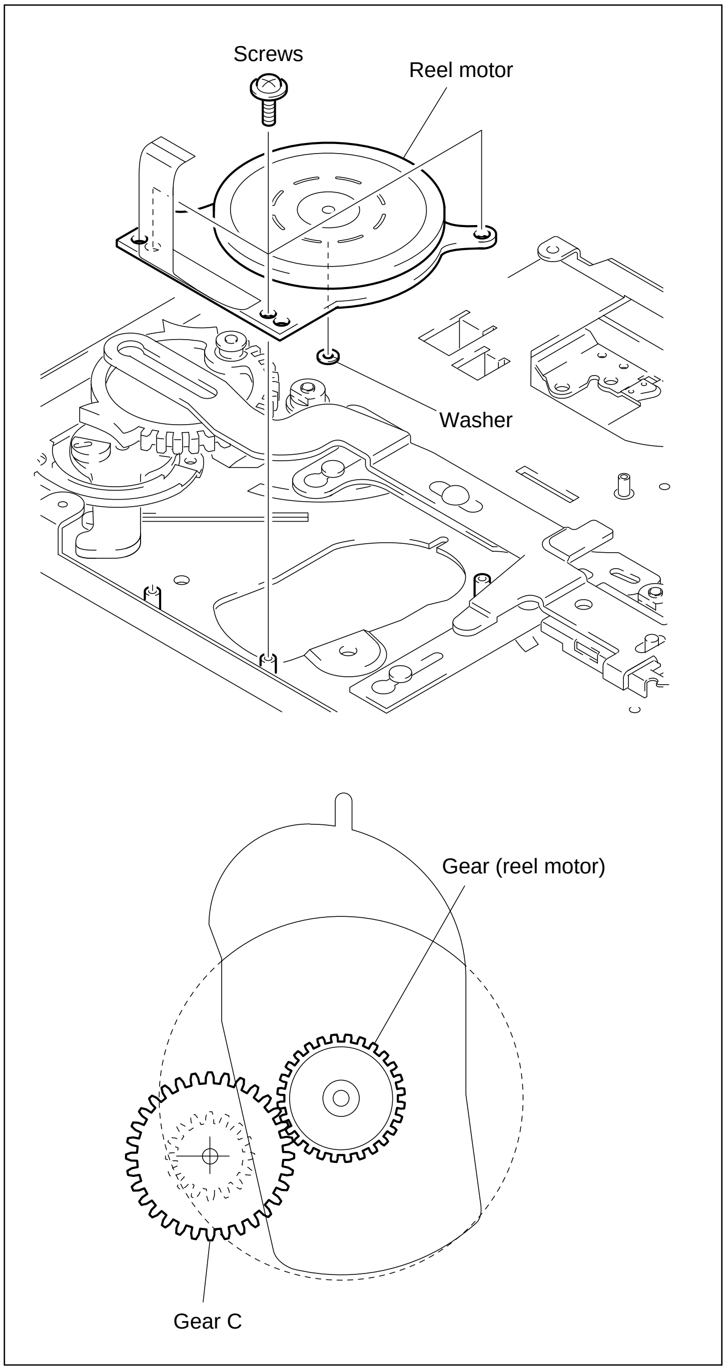
4. Attach the new reel motor in the reverse order of step 3.

Note: **After attaching, check that the gear of the reel motor shown in the figure and gear C are engaged.**

5. Attach the parts removed in the reverse order of steps 1 to 3.

Check/Adjustment

6. Perform the reel FG DUTY adjustment at Menu M607. (Refer to Section 8-2.)
7. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)



4-31. REPLACEMENT OF REEL MOVING ARM ASSEMBLY

Replacement Flowchart

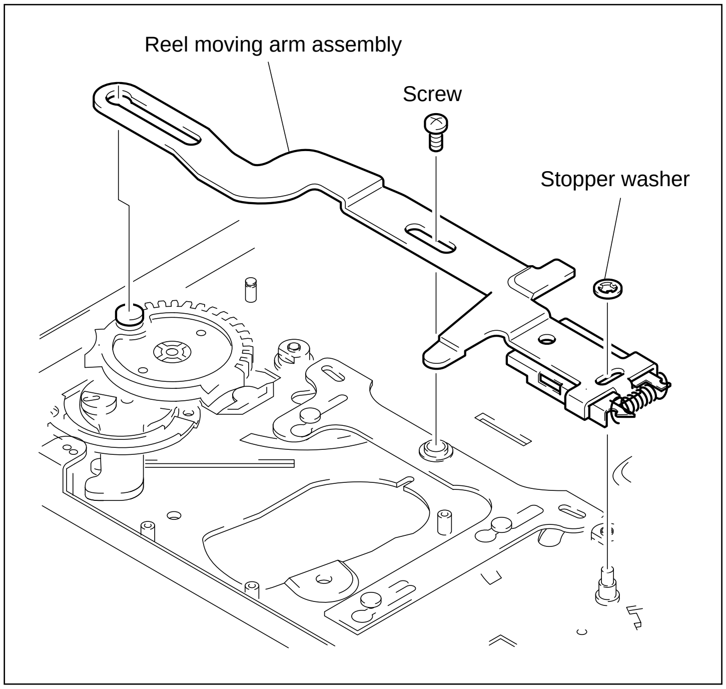
Removal of SV-164 board

↓

Replacement of reel moving arm assembly

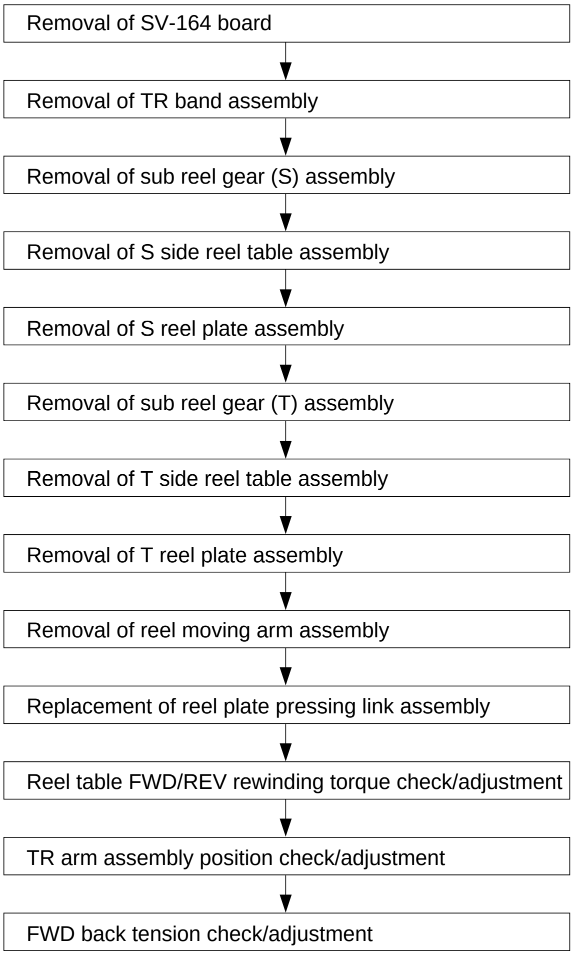
Removal/Attachment

1. Remove the SV-164 board.
   (Refer to Section 2-11-8.)
2. Remove the screw and stopper washer shown in the figure, and remove the reel moving arm assembly.
3. Attach the new reel moving arm assembly in the reverse order of step 2.
4. Attach the parts removed in the reverse order of step 1.



4-32. REPLACEMENT OF REEL PLATE PRESSING LINK ASSEMBLY

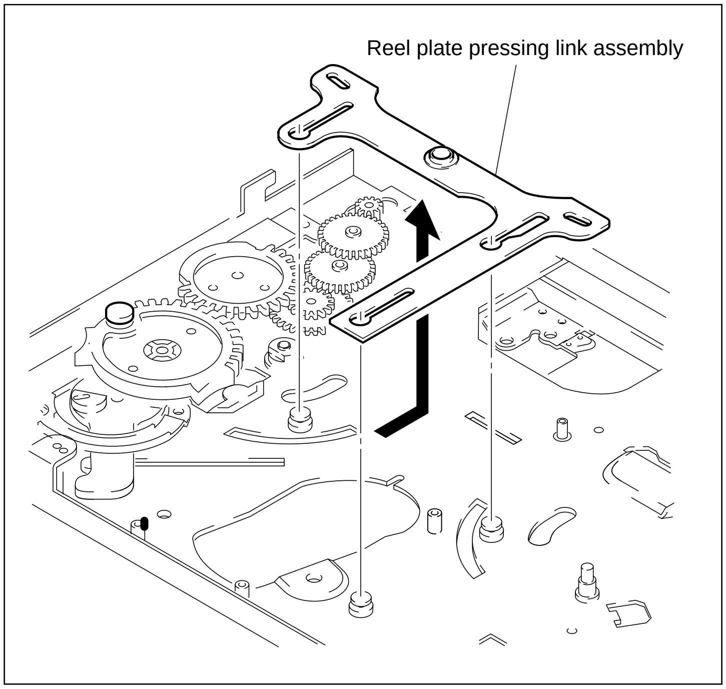
Replacement Flowchart


Removal of SV-164 board
Removal of TR band assembly
Removal of sub reel gear (S) assembly
Removal of S side reel table assembly
Removal of S reel plate assembly
Removal of sub reel gear (T) assembly
Removal of T side reel table assembly
Removal of T reel plate assembly
Removal of reel moving arm assembly
Replacement of reel plate pressing link assembly
Reel table FWD/REV rewinding torque check/adjustment
TR arm assembly position check/adjustment
FWD back tension check/adjustment

Removal

1. Remove the SV-164 board. (Refer to Section 2-11-8.)
2. Remove the TR band assembly. (Refer to Section 4-12.)
3. Remove the sub reel gear (S) assembly. (Refer to Section 4-10.)
4. Remove the S side reel table assembly. (Refer to Section 4-4.)
5. Remove the S reel plate assembly. (Refer to Section 4-19.)
6. Remove the sub reel gear (T) assembly. (Refer to Section 4-11.)
7. Remove the T side reel table assembly. (Refer to Section 4-5.)
8. Remove the T reel plate assembly. (Refer to Section 4-20.)
9. Remove the reel moving arm assembly. (Refer to Section 4-31.)

10. Remove the reel plate pressing link assembly from the shaft (at three parts) in the arrow direction as shown in the figure.



Attachment

11. Attach the new reel plate pressing link assembly in the reverse order of step 10.
12. Attach the parts removed in the reverse order of steps 1 to 11.

Note: When attaching the parts, make sure that the S side reel table assembly and T side reel table assembly, and the sub reel gear (S) assembly and sub reel gear (T) assembly are not mixed up with each other.

Check/Adjustment

13. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-38.)
14. Perform TR arm assembly position check/adjustment. (Refer to Section 4-40.)
15. Perform FWD back tension check/adjustment. (Refer to Section 4-39.)

4-33. REPLACEMENT OF MIC ASSEMBLY

Reel table position: Center of the standard cassette position and mini cassette position

Replacement Flowchart

Removal of reel lock arm
↓
Removal of reel lock cover
↓
Removal of SV-164 board
↓
Removal of one rack case screw
↓
Replacement of MIC assembly

Removal

1. Remove the reel lock arm.
   (Refer to Section 4-26.)
2. Remove the reel lock cover.
   (Refer to Section 4-26.)
3. Remove the SV-164 board.
   (Refer to Section 2-11-8.)
4. Rotate gear M of the shift motor, and move the MIC lever to the position shown in the figure.
5. Remove the screw of the rack case.
6. Lift up the MIC lever slightly, rotate the MIC assembly in the arrow direction and slide it, then further lift up the rack case slightly and remove it.

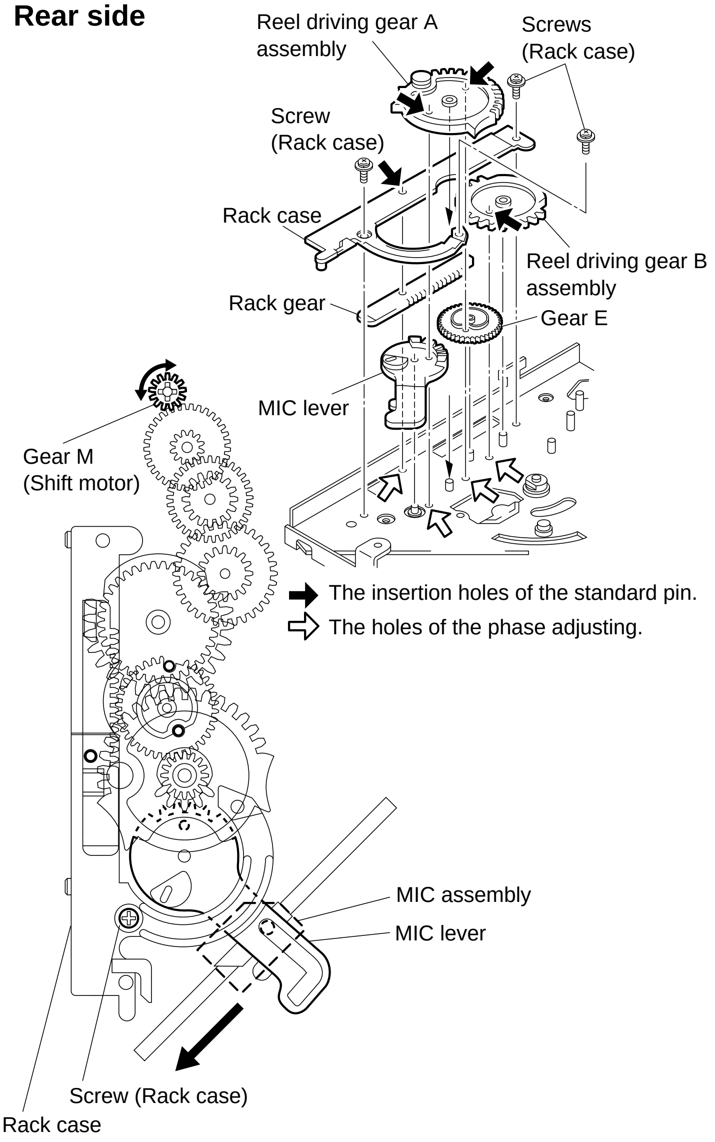
Attachment

7. Attach the MIC assembly in the reverse order of steps 4 to 6.
8. Attach the parts removed in the reverse order of steps 1 to 3.

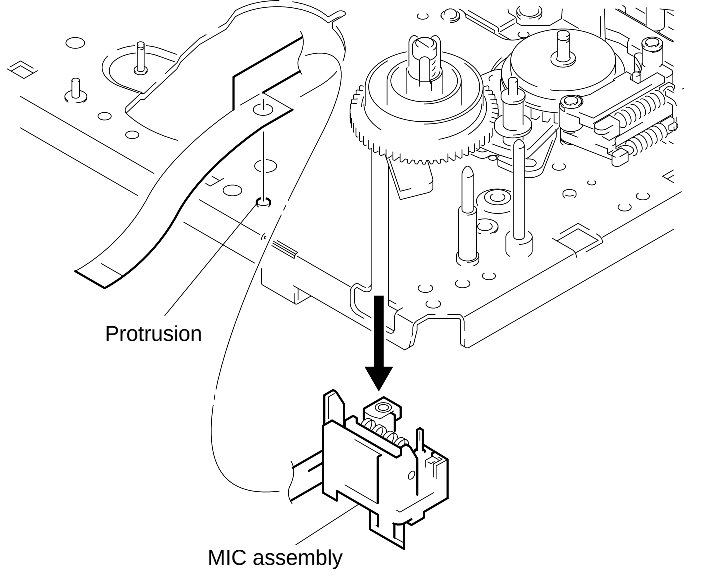
Check

9. After replacing, perform the phase check of each gear as follows.
   - Insert the reference pin into the gear hole shown in the figure, and check that it goes into the hole on the chassis.

Rear side


Reel driving gear A assembly
Screws (Rack case)
Screw (Rack case)
Rack case
Reel driving gear B assembly
Rack gear
Gear E
MIC lever
Gear M (Shift motor)
➡ The insertion holes of the standard pin.
⇨ The holes of the phase adjusting.
MIC assembly
MIC lever
Screw (Rack case)
Rack case

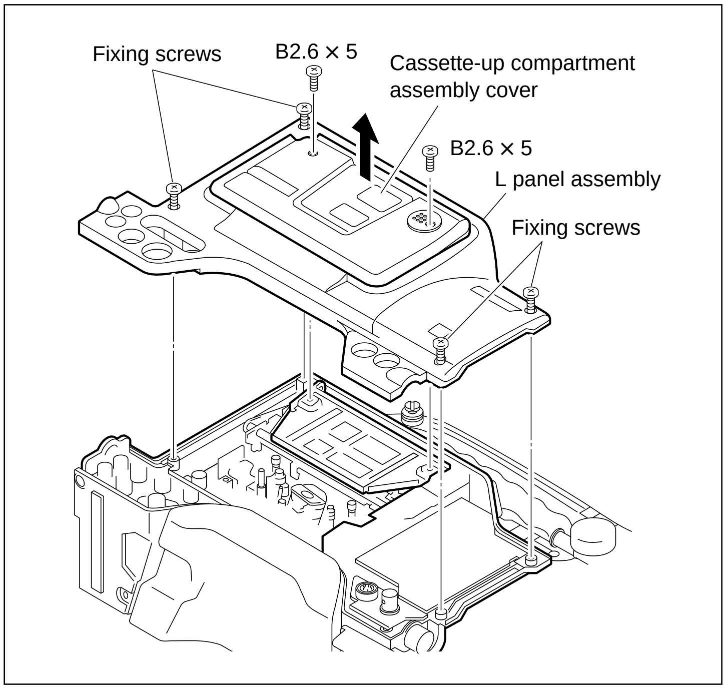
Front side


Protrusion
MIC assembly

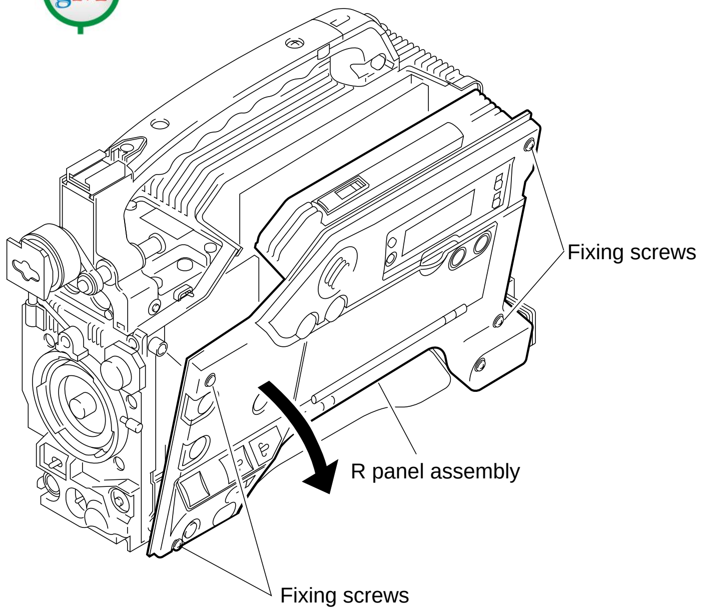
4-34. REPLACEMENT OF CCD UNIT

Removal

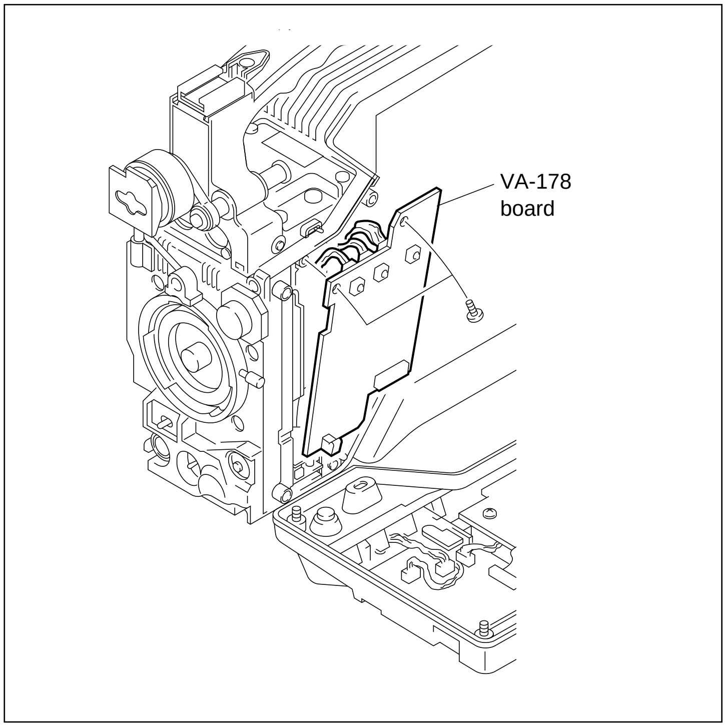
1. Remove the four screws of the L panel assembly and remove the two screws of the Cassette-up compartment assembly cover which is part of the L panel assembly.


Fixing screws
B2.6 × 5
Cassette-up compartment assembly cover
B2.6 × 5
L panel assembly
Fixing screws

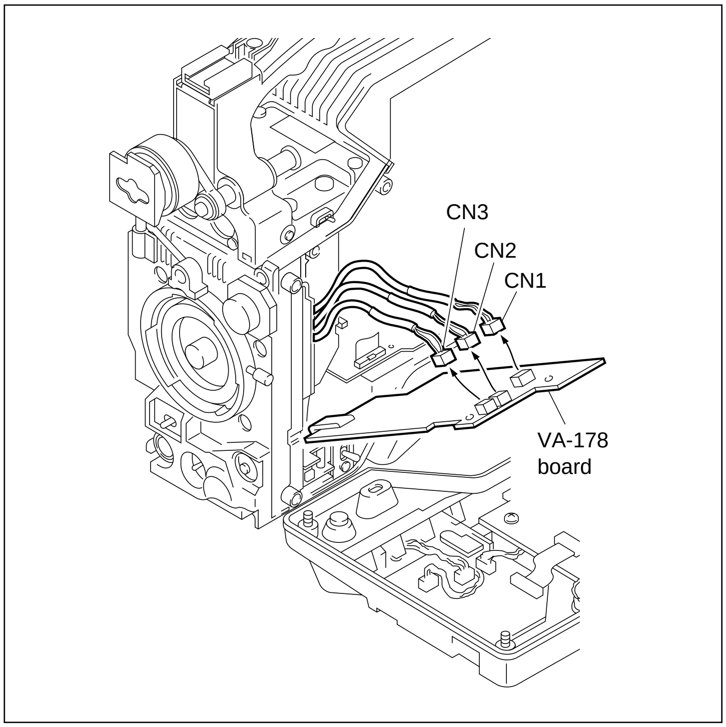
2. Remove the four screws of the R panel assembly.


Fixing screws
R panel assembly
Fixing screws

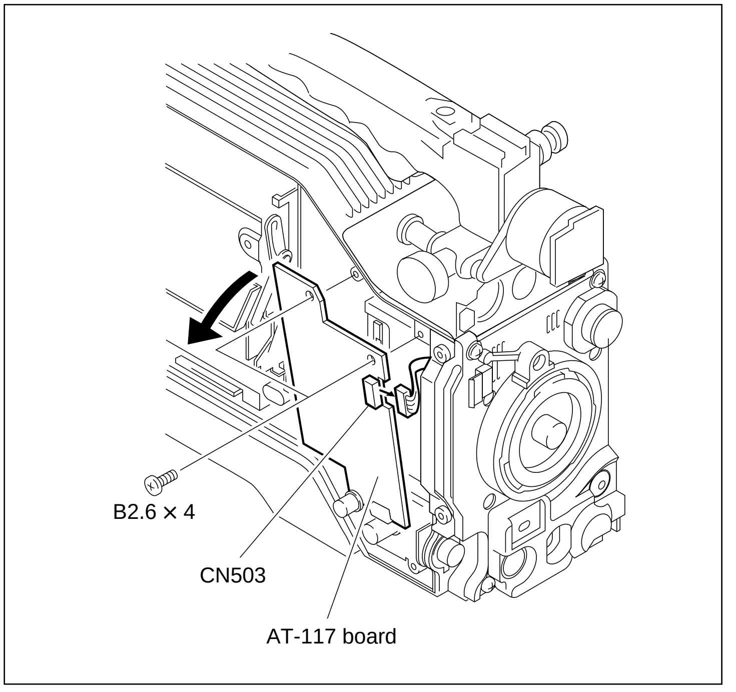
3. Remove the two screws of the VA-178 board.


VA-178
board

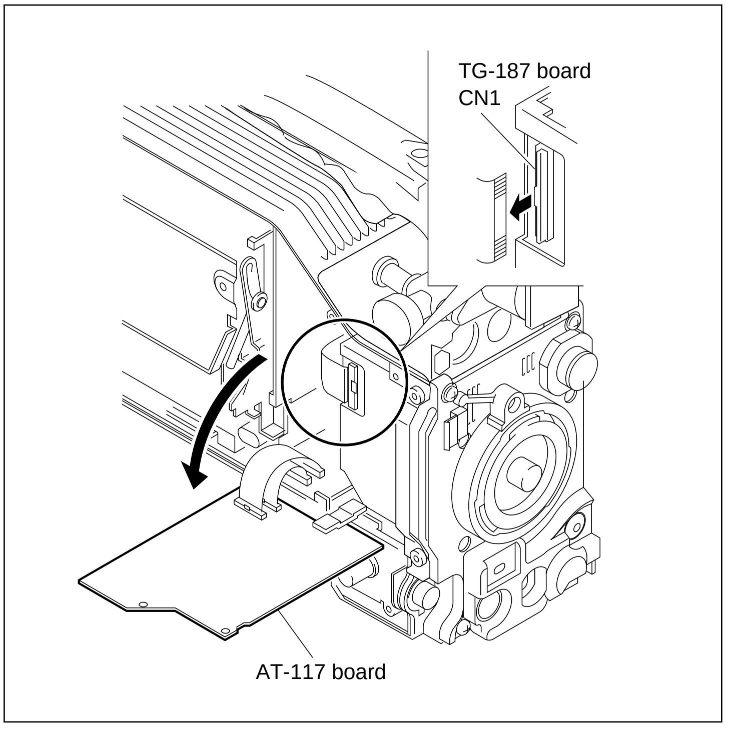
4. Disconnect the connectors CN1, CN2 and CN3 on the VA-178 board.


CN3
CN2
CN1
VA-178
board

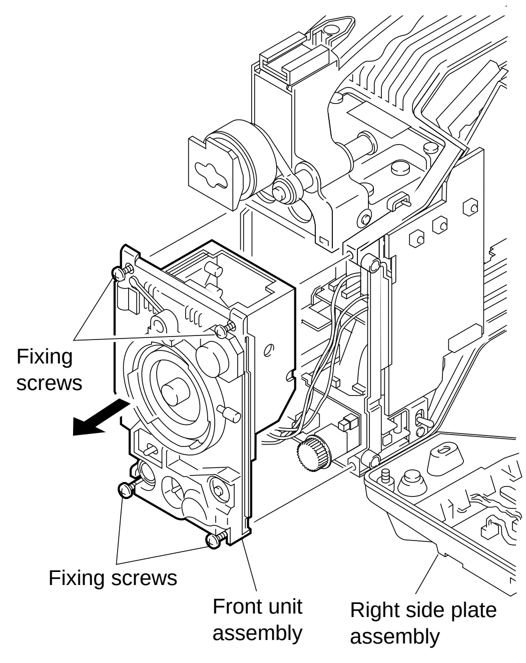
5. Remove the two screws of the AT-117 board. Disconnect the connector CN503 on the AT-117 board.


B2.6 × 4
CN503
AT-117 board

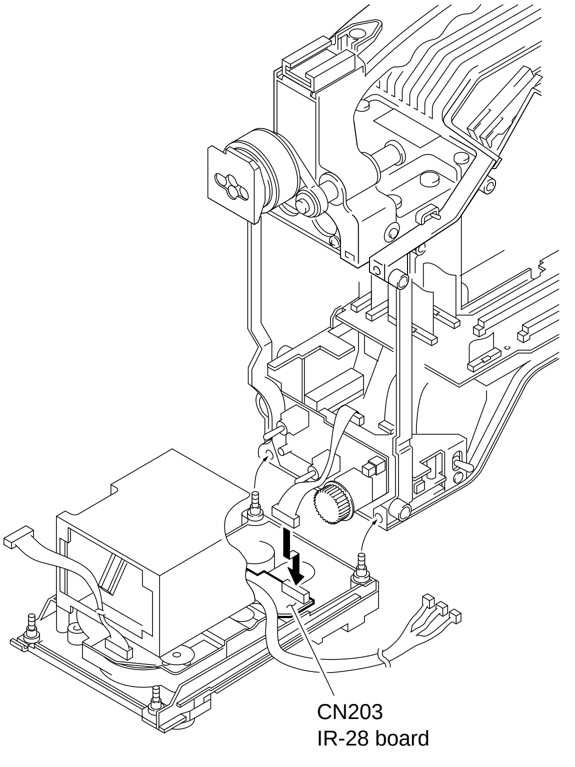
6. Disconnect the connector CN1 on the TG-187 board.


TG-187 board
CN1
AT-117 board

7. Remove the four screws of the Front unit assembly and pull out the Front unit assembly carefully in the arrow direction.


Fixing
screws
Fixing screws
Front unit
assembly
Right side plate
assembly

8. Disconnect the connector CN203 on the IR-28 board.


CN203
IR-28 board

9. Remove the setscrew (3 × 4) to remove the filter knob.
10. Remove the three screws (B2.6 × 5) and remove the shield case.
11. Remove the four screws (B3 × 6) and remove the CCD unit from the Front unit assembly.

Note: When handling the CCD unit, pay attention not to stress each PA board.

12. First remove the holder for transportation from the replacement CCD unit.
    Then replace the defective CCD unit with it.

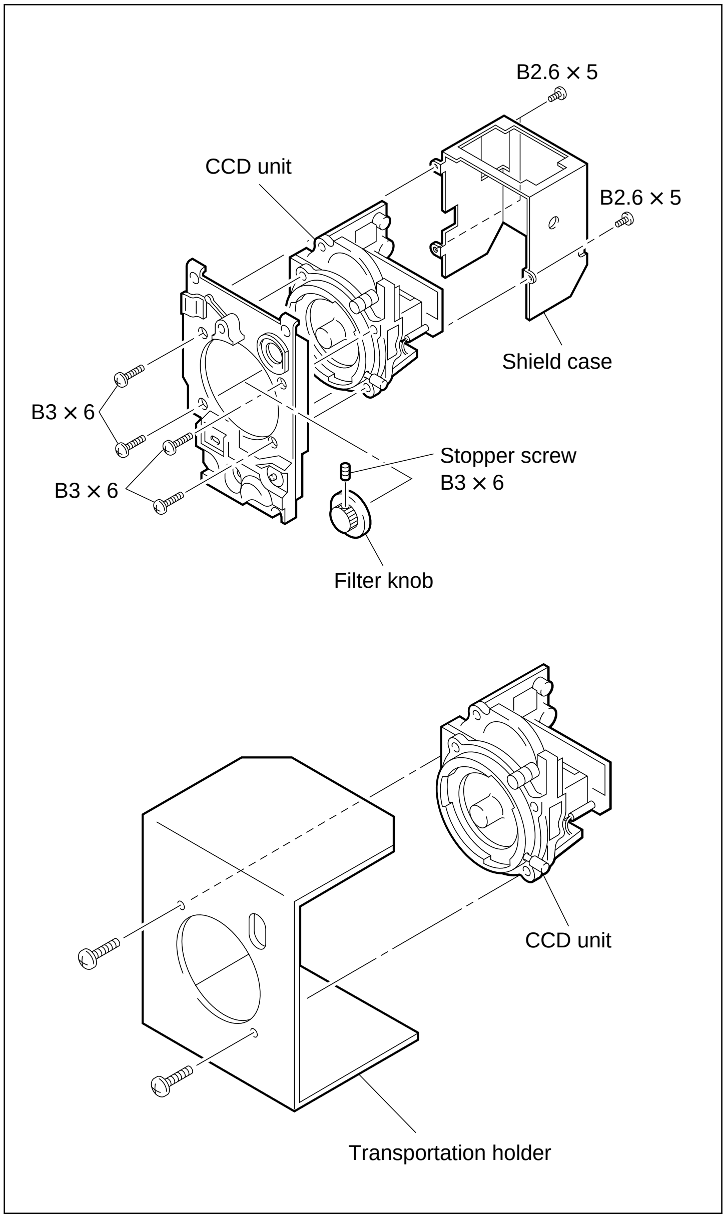
Note: Re-use the holder for shipping back the replacement unit.

Attachment

13. Assemble in the reverse order of removal.

Adjustment

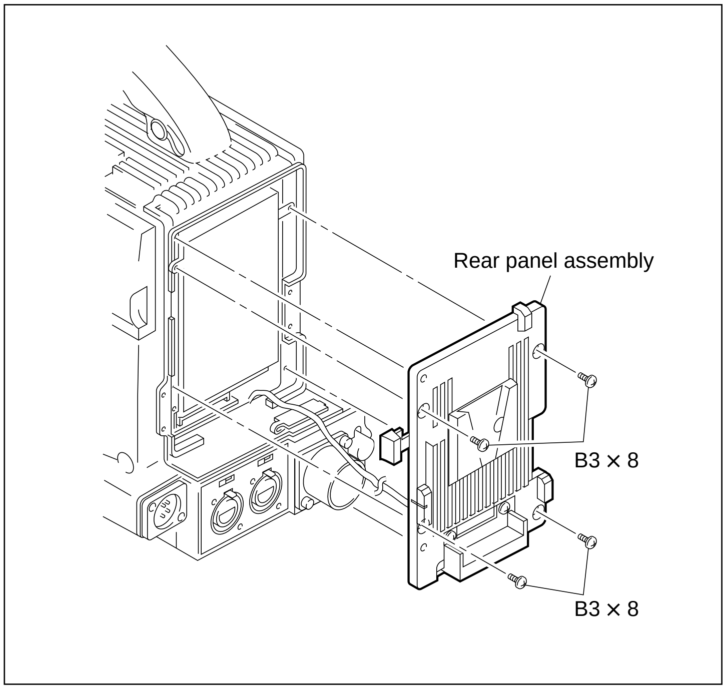
14. After the replacement is completed, perform several adjustments referring to Section 7-1-4. Note on Adjustment.
    In addition, perform MEMORY BACK UP referring to Section 2-26-3 of menu “Page 24.”


B2.6 × 5
CCD unit
B2.6 × 5
Shield case
B3 × 6
Stopper screw
B3 × 6
B3 × 6
Filter knob
CCD unit
Transportation holder

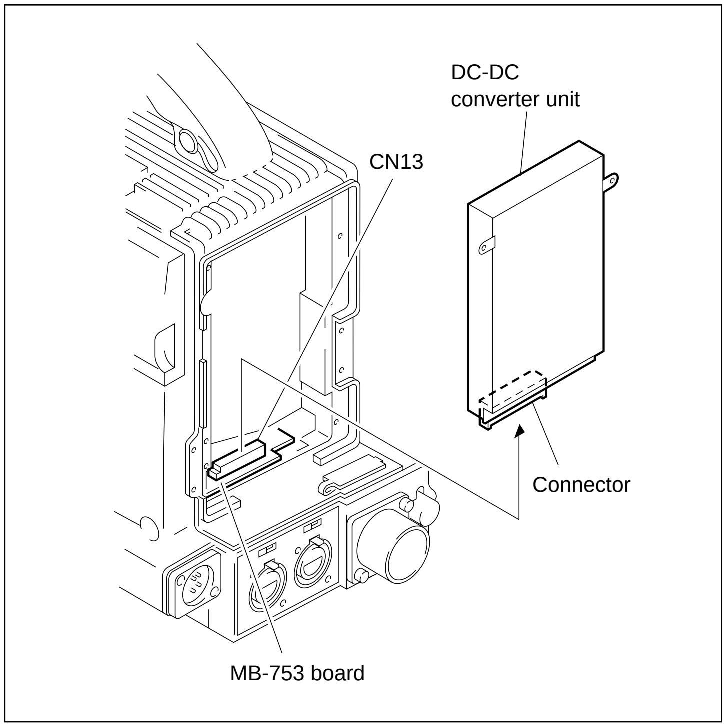
4-35. REPLACEMENT OF DC-DC CONVERTER

Removal

1. Remove the four screws of the Rear panel assembly.


Rear panel assembly
B3 × 8
B3 × 8

2. Pull out the CN13 connector of the MB-753 board from the DC-DC converter in the arrow direction.


DC-DC
converter unit
CN13
Connector
MB-753 board

Attachment

3. Attach a new parts in the reverse order of steps 1 and 2.

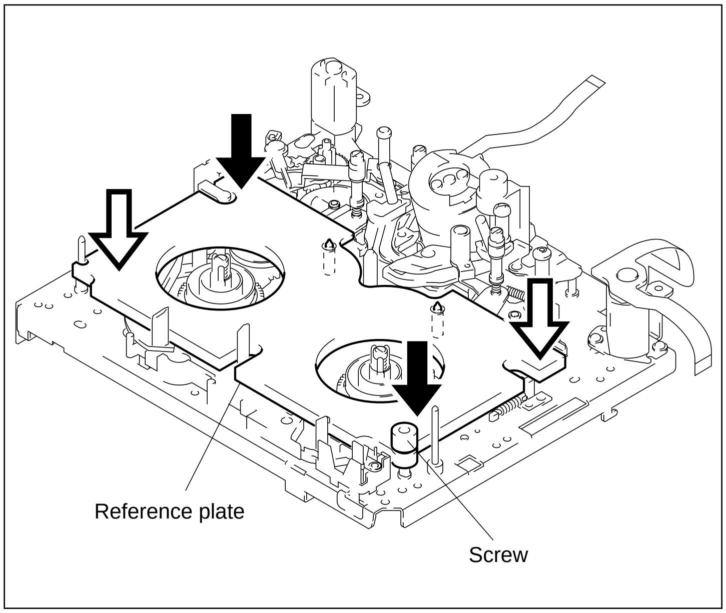
ADJUSTMENTS AFTER REPLACEMENT OF MAIN PARTS

4-36. S REEL TABLE, T REEL TABLE HEIGHT CHECK/ADJUSTMENT

Reel table position: Standard cassette position

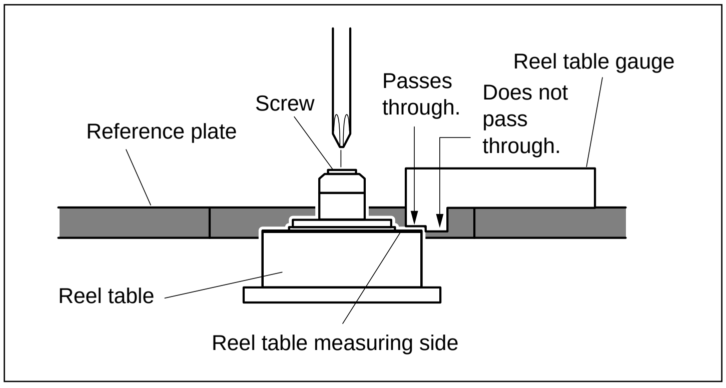
- Tools
  Reference plate: J-6442-410-A
  Reel table gauge: J-6442-430-A
- Perform the reel table height check/adjustment in the same way for the S reel table and T reel table.
- Perform with the cassette compartment removed. (Refer to Section 4-2.)

1. Place the reference plate onto the mechanical deck, press the four corners of the reference plate with your finger on the diagonal lines respectively as shown in the figure, and check that it does not shake. If it shakes, rotate the screw on the reference plate, and adjust so that it does not shake.


Reference plate
Screw

2. Push the reel table gauge against the reel table lightly as shown in the figure, and check that the tip of the gauge passes through the top part, but not the bottom. If this is not satisfied, rotate the screw of the reel table shown in the figure, and adjust.

   Note: When adjusting the reel table, do not rotate the screw counterclockwise. Rotate it clockwise only. If rotated counterclockwise a reel table must be replaced.


Reel table gauge
Passes through.
Screw
Does not pass through.
Reference plate
Reel table
Reel table measuring side

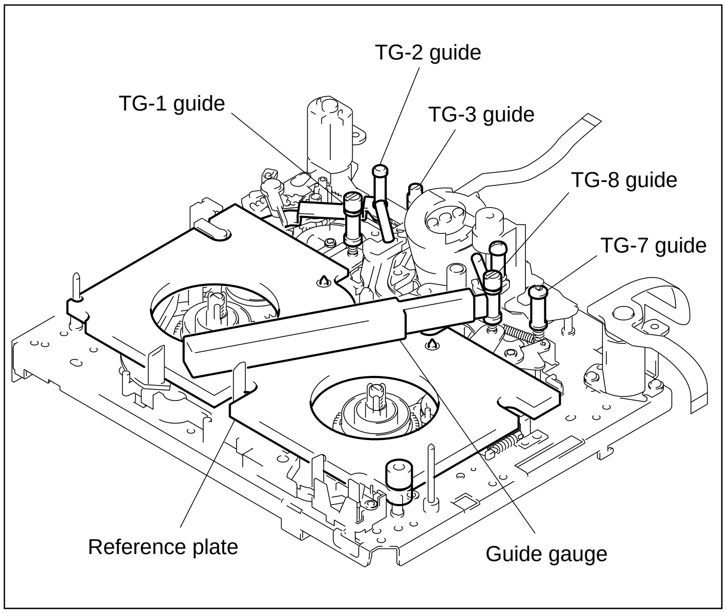
4-37. GUIDE HEIGHT CHECK/ ADJUSTMENT

Reel table position: Standard cassette position
Mode: Threading end

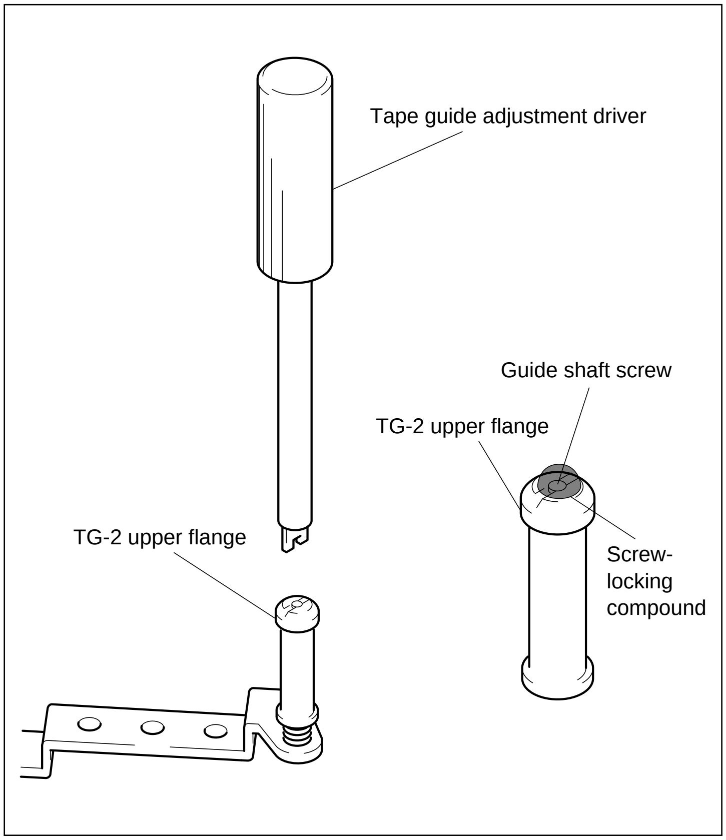
- Tools
  Reference plate: J-6442-410-A
  Guide gauge: J-6442-420-A
  Tape guide adjustment screwdriver:
  J-6082-362-A
  Three bond 1401B (screw-locking compound):
  7-432-114-11
- Remove the cassette compartment.
  (Refer to Section 4-2.)

The following describes the method for performing the height check/adjustment of each guide.

- TG-1 guide
  (Adjust the guide height with the upper flange.)
- TG-2 guide
  (Adjust the guide height with the lower flange.)
- TG-3 guide
  (Adjust the guide height with the upper flange.)
- TG-7 guide
  (Adjust the guide height with the upper flange.)
- TG-8 guide
  (Adjust the guide height with the upper flange.)

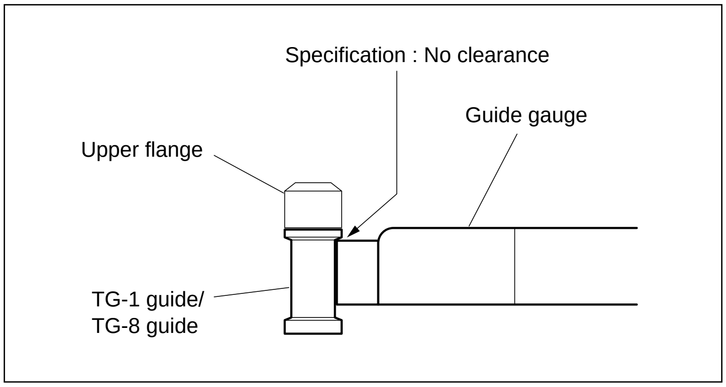


- Use the service tool tape guide adjustment screwdriver to adjust the height of the tape guides.
- After adjusting the tape guide height, apply screw-locking compound (Three bond 1401B) to the screw of the upper flange of the tape guides.


Tape guide adjustment driver
Guide shaft screw
TG-2 upper flange
TG-2 upper flange
Screw-
locking
compound

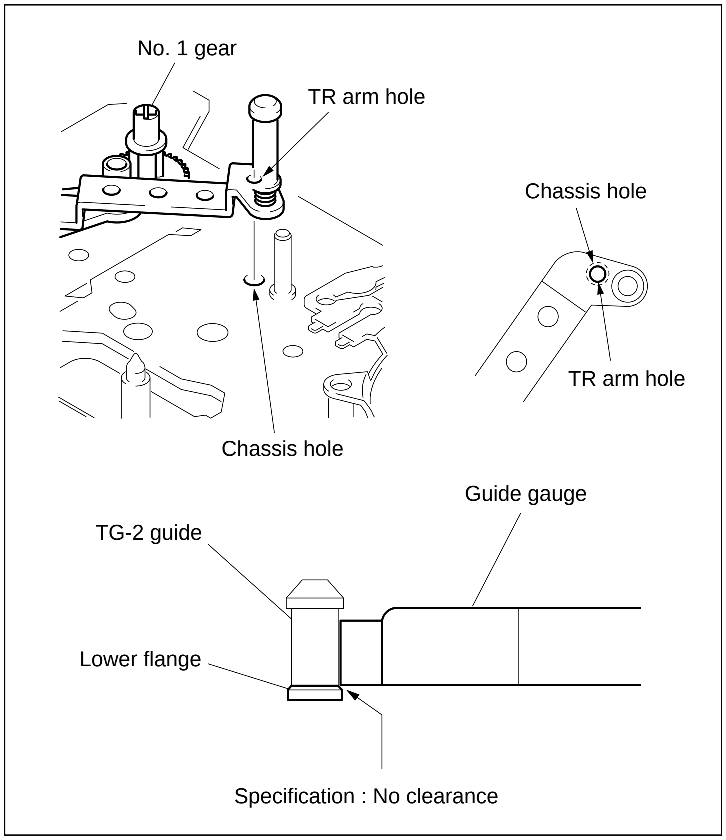
[TG-1, TG-8 Guide]

1. Place the reference plate on the mechanical deck. (Refer to Section 4-34. step 1.)
2. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the upper flange.
   If this is not satisfied, rotate the flange and adjust.


Specification : No clearance
Guide gauge
Upper flange
TG-1 guide/
TG-8 guide

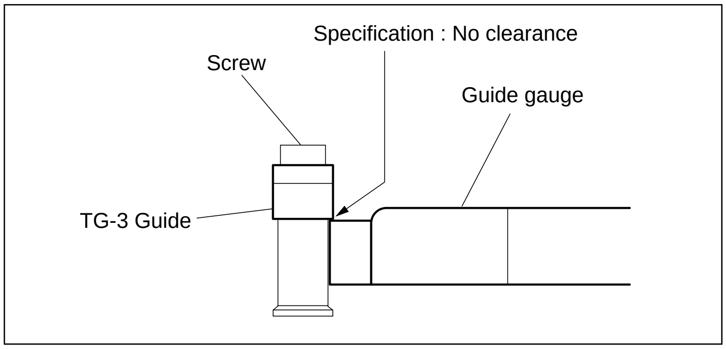
[TG-2 Guide]

1. Place the reference plate on the mechanical deck. (Refer to Section 4-36. step 1.)
2. Rotate the No.1 gear so that the TR arm hole and chassis hole shown in the figure are at the same position when seen from above.
3. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the lower flange.
   If this is not satisfied, rotate the flange and adjust.


No. 1 gear
TR arm hole
Chassis hole
TR arm hole
Chassis hole
Guide gauge
TG-2 guide
Lower flange
Specification : No clearance

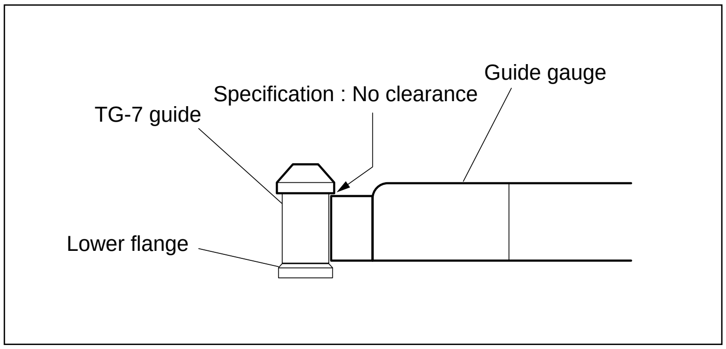
[TG-3 Guide]

1. Place the reference plate on the mechanical deck. (Refer to Section 4-36. step 1.)
2. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the upper flange.
   If this is not satisfied, rotate the screw shown in the figure and adjust.


Specification : No clearance
Screw
Guide gauge
TG-3 Guide

[TG-7 Guide]

1. Place the reference plate on the mechanical deck. (Refer to Section 4-36. step 1.)
2. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the upper flange.
   If this is not satisfied, rotate the flange and adjust.

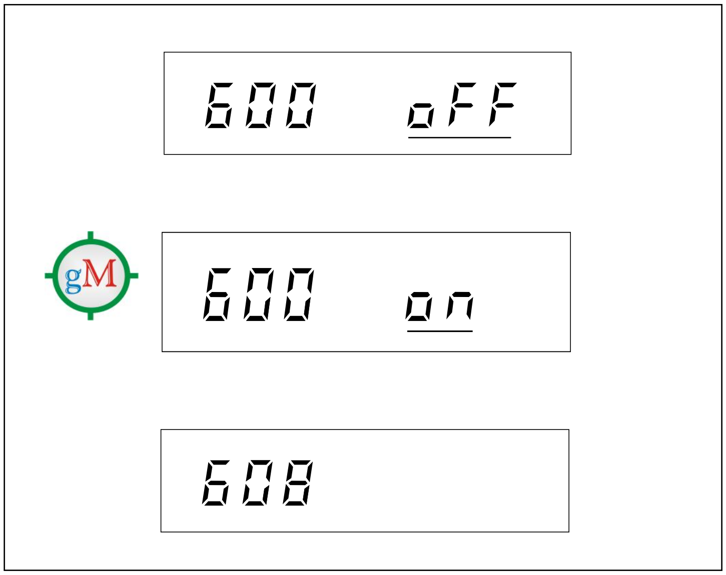

Guide gauge
Specification : No clearance
TG-7 guide
Lower flange

4-38. REEL TABLE FWD/REV REWINDING TORQUE CHECK/ ADJUSTMENT

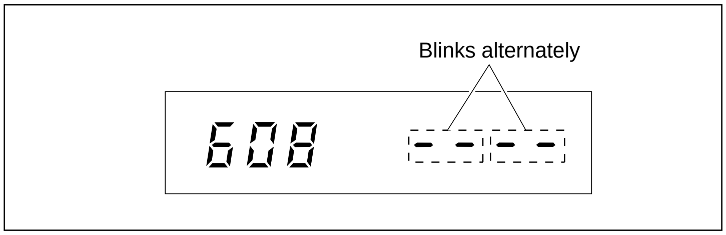
Reel table position: Standard cassette position

- Tools
  Torque gauge (90ATG): J-6442-510-A
  Rewinding torque measuring attachment:
  J-6442-520-A
  Torque cassette: J-6082-373-A

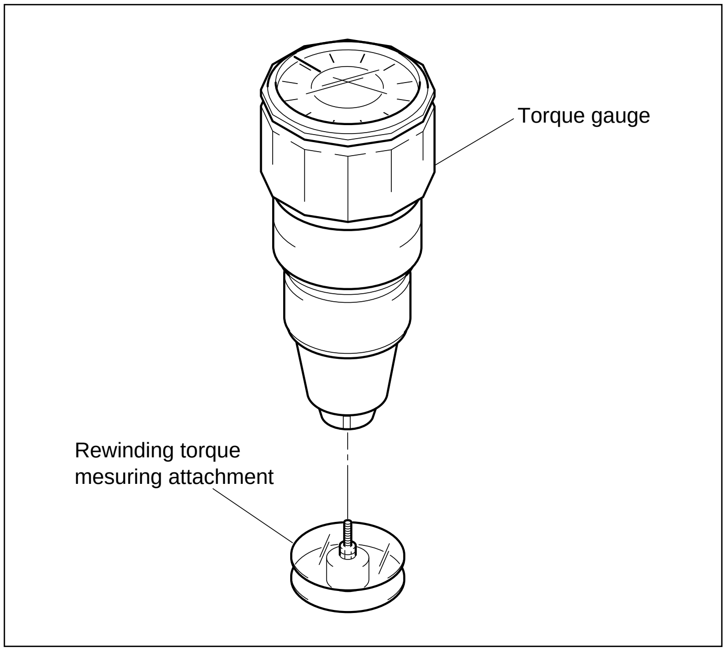
1. Remove the cassette compartment.
   (Refer to Section 4-2.)
2. While pressing the SHIFT button inside the TC panel, press the MENU button.
3. While pressing MENU button, release the SHIFT button. Check that “600 oFF” is displayed about 1 second later, and release the MENU button. (Displayed characters underlined in the following description indicate that they are blinking.)
4. Press the RESET (MENU SET) button once to blink “oFF.”
5. Press the ADVANCE button once and select “on.” (on and oFF are repeated each time the ADVANCE button is pressed.)
6. Press the RESET (MENU SET) button once.
7. Press the ADVANCE button or SHIFT button to display Menu No. 608.



8. Press the RESET (MENU SET) button.
   Check that the parts displayed on the display window blink alternately as shown in the figure.



9. Set the rewinding torque measuring attachment to the torque gauge (90ATG) as shown in the figure as shown in the figure.

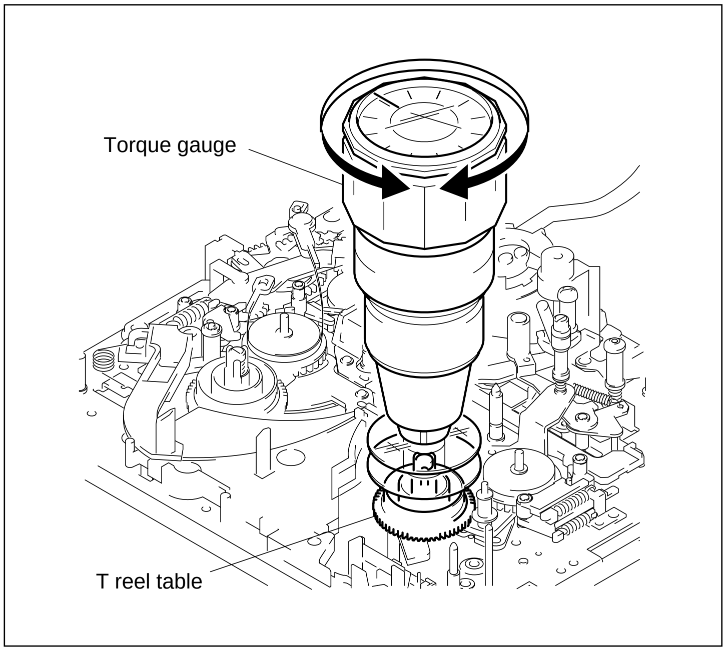


10. Place the torque gauge on the T reel table, press the STOP key, and rotate the reel table to the FWD side.
11. Adjust the torque gauge pointer to “0” and check that the torque gauge value satisfies the specification.

    Specification:
    FWD rewinding torque: 0.0052 ±0.0002 N•m
    (52 ±2 g•cm)

    If it does not, perform the following adjustment.
    - When the torque value is towards the + side: Press the REW key and adjust so that the torque value is within the specification.
    - When the torque value is towards the – side: Press the FF key and adjust so that the torque value is within the specification.

12. Press the STOP key, and stop the reel table from rotating.



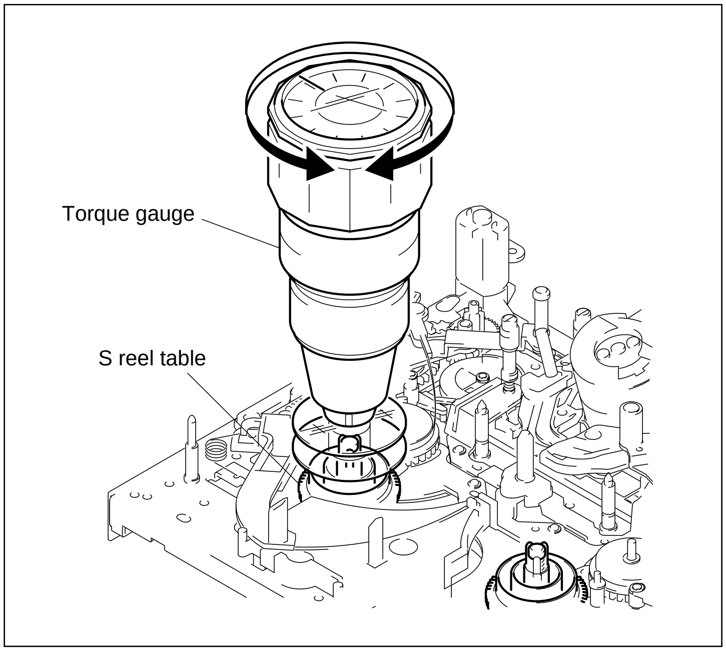
13. Place the torque gauge on the S reel table, press the STOP key, and rotate the reel table towards the REV side.
14. Adjust the torque gauge pointer to “0” and check that the torque gauge value satisfies the specification.

Specification:
REV rewinding torque: 0.0052 ±0.0002 N•m
(52 ±2 g•cm)

If it does not, perform the following adjustment.

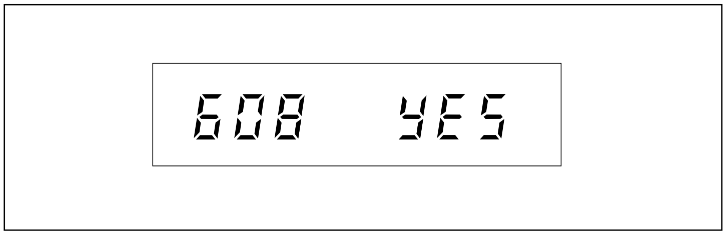
- When the torque value is towards the + side: Press the REW key and adjust so that the torque value is within the specification.

- When the torque value is towards the – side: Press the FF key and adjust so that the torque value is within the specification.

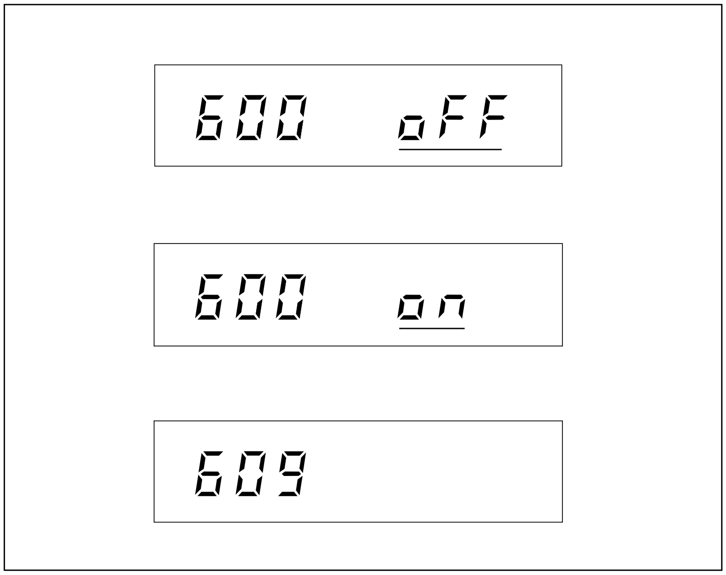


15. Press the STOP key, and stop the reel table from rotating.

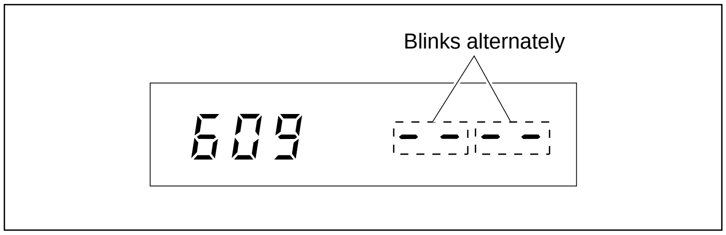
16. After removing the torque gauge, press the EJECT key, and check that the display windows is as shown in the figure.
17. Attach the cassette compartment. (Refer to Section 4-2.)



18. While pressing the SHIFT button inside the TC panel, press the MENU button.
19. While pressing MENU button, release the SHIFT button. Check that “600 oFF” is displayed about 1 second later, and release the MENU button. (Displayed characters underlined in the following description indicate that they are blinking.)
20. Press the RESET (MENU SET) button once to blink “oFF.”
21. Press the ADVANCE button once and select “on.” (on and oFF are repeated each time the ADVANCE button is pressed.)
22. Press the RESET (MENU SET) button once.
23. Press the ADVANCE button or SHIFT button to display Menu No. 609.



24. Press the RESET (MENU SET) button.
Check that the parts displayed on the display window blink alternately as shown in the figure.
25. Insert the torque cassette, and check that the STOP mode is set.



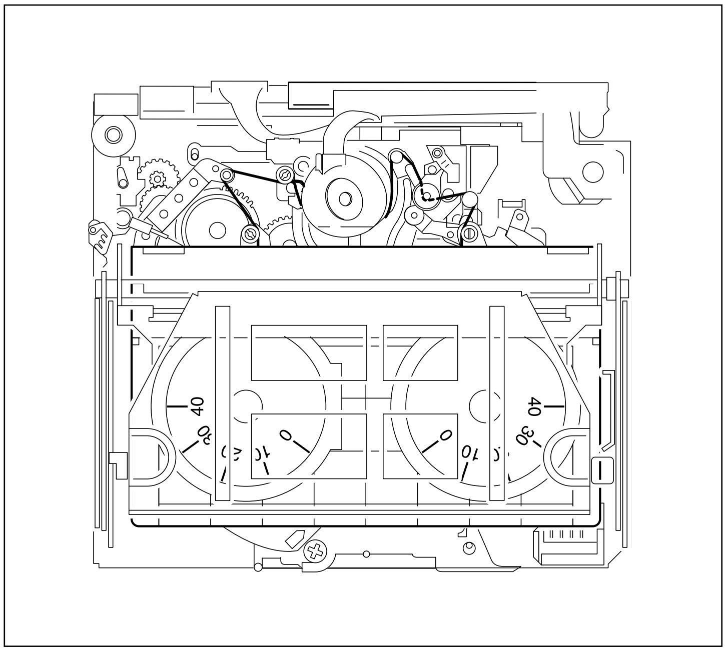
26. Press the STOP key, and check that the torque cassette value of the FWD tape path satisfies the specification.

Specification:
FWD rewinding torque: 0.0010 ±0.0001 N•m
(10 ±1 g•cm)

If it does not, perform the following adjustment.

- When the torque value is towards the + side:
Press the REW key and adjust so that the torque value is within the specification.

- When the torque value is towards the – side:
Press the FF key and adjust so that the torque value is within the specification.



27. Press the STOP key, and check that the torque cassette value of the REV tape path satisfies the specification.

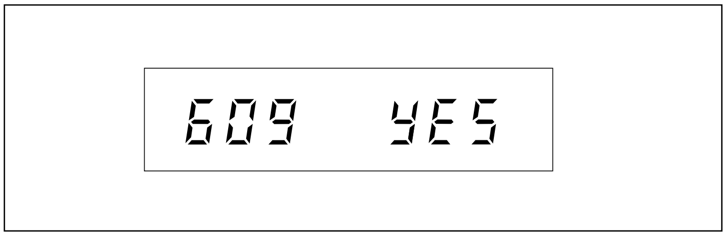
Specification:
REV rewinding torque: 0.0010 ±0.0001 N•m
(10 ±1 g•cm)

If it does not, perform the following adjustment.

- When the torque value is towards the + side:
Press the REW key and adjust so that the torque value is within the specification.

- When the torque value is towards the – side:
Press the FF key and adjust so that the torque value is within the specification.

28. Press the EJECT key, and remove the torque cassette.
29. Check that the display window is as shown in the figure.



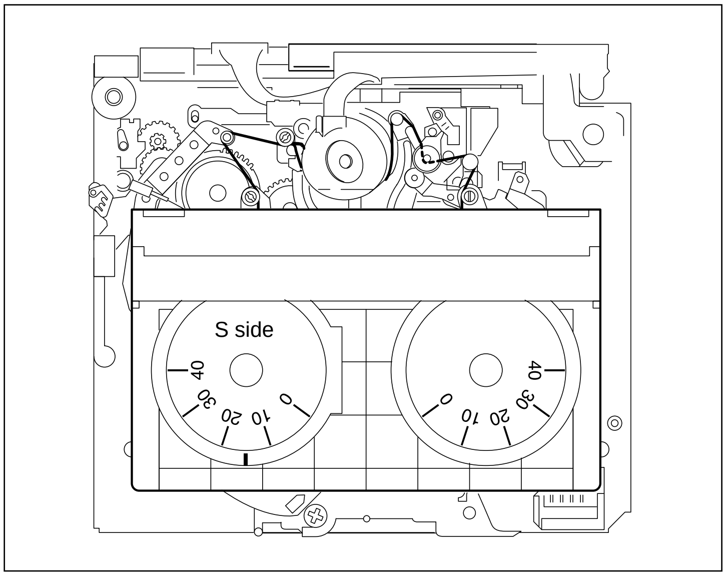
4-39. FWD BACK TENSION CHECK/ ADJUSTMENT

Reel table position: Standard cassette position
Mode: PLAY

- Tool:
  Torque cassette: J-6082-373-A

1. Remove the cassette compartment.
   (Refer to Section 4-2.)
2. Set the torque cassette.
3. Hold the torque cassette gently so that it does not rise, run the tape, and check that the FWD back tension torque value (S side) satisfies the specification.

   Specification
   FWD back tension torque:
   0.0011 to 0.00145 N•m
   (11 to 14.5 g•cm)

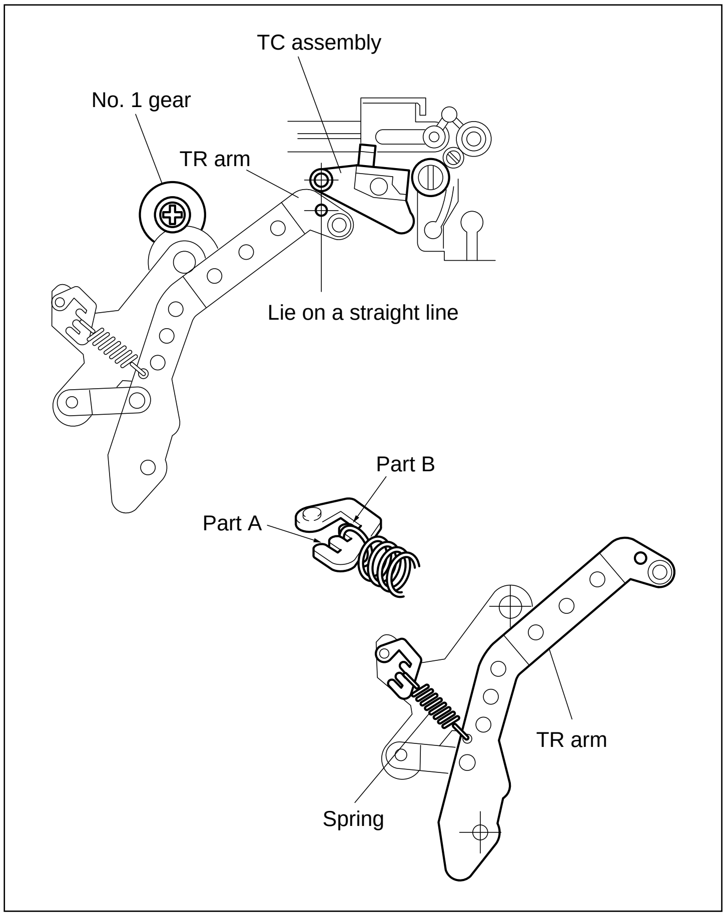

S side
40
30
20
10
0
0
10
20
30
40

   If it does not, perform the following adjustment.
   1) Press the EJECT key, and remove the tape.
   2) Rotate the No. 1 gear, load the TR arm, and adjust so that the TR arm hole and TC assembly shaft hole shown in the figure lie on a straight line.

   - When the torque value is towards the + side:
     Re-hook the spring at part A.

   - When the torque value is towards the − side:
     Re-hook the spring at part B.

4. Perform step 3 again, and check that the torque value satisfies the specification.


TC assembly
No. 1 gear
TR arm
Lie on a straight line
Part B
Part A
TR arm
Spring

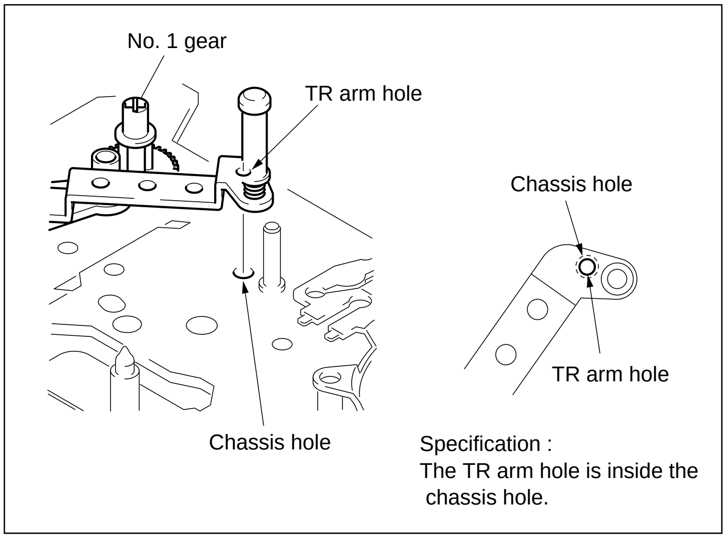
4-40. TR ARM ASSEMBLY POSITION CHECK/ADJUSTMENT

Reel table position: Mini cassette position
Mode: PLAY

- Tool
  Mini cassette tape (commercial product)

1. Run the mini cassette tape (commercial product), and check that the TR arm hole is inside the chassis hole as seen from the above.

   Specification:
   The TR arm hole should be inside the chassis hole during PLAY.

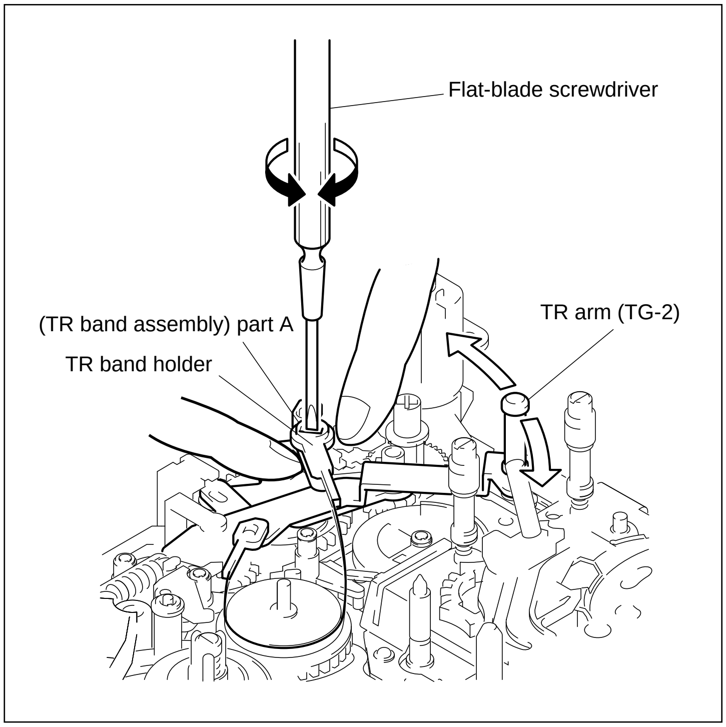

No. 1 gear
TR arm hole
Chassis hole
Chassis hole
TR arm hole

Specification :
The TR arm hole is inside the chassis hole.

If it is not, perform the following adjustment.

- Insert a flat-blade screwdriver into part A of the TR band assembly shown in the figure, rotate it in the clockwise or counterclockwise directions to adjust it.

Note 1: When performing the adjustment, hold the TR band holder so that it does not rotate.
Note 2: Never touch the tape.


Flat-blade screwdriver
(TR band assembly) part A
TR band holder
TR arm (TG-2)

SECTION 5
TAPE PATH ALIGNMENT

5-1. GENERAL INFORMATION FOR TAPE PATH ALIGNMENT

5-1-1. Equipment and Tools Used

- Oscilloscope (Tektronix 2445B or equivalent)
- Guide adjustment driver (SONY Part No. J-6082-362-A)
- Small adjustment mirror (SONY Part No. J-6080-710-A)
- RF extension tool (SONY Part No. J-6442-350-A)
- Alignment tape, XH2-1AST (for DSR-1/1P, SONY Part No. 8-967-999-02)
- Alignment tape, XH5-1A (for DSR-1, SONY Part No. 8-967-999-21)
- Alignment tape, XH5-1AP (for DSR-1P, SONY Part No. 8-967-999-25)
- Blanking tape (commercially available tape, SONY PDVM-40ME or equvialent)
- Three bond 1401B

5-1-2. Tape Guide Adjustment Driver and Locking Screw

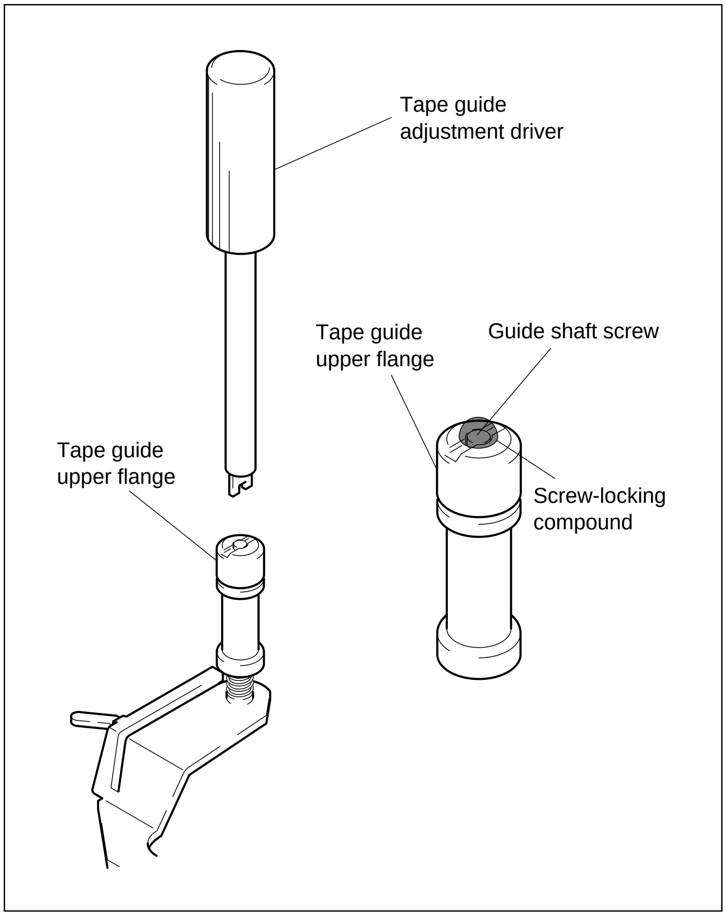
(1) When performing the height adjustment of each tape guide, use the tape guide adjustment driver as a service tool.

(2) Adjust the heights of TG-1, TG-2, TG-3, TG-5, TG-7 and TG-8 guides, then apply a screw-locking compound to the locking screw of the upper flange of the tape guide.

	SONY Part No.
Tape guide adjustment driver	J-6082-362-A
Three Bond 1401B	7-432-114-11

Precaution on applying a screw-locking compound:

- Do not apply a screw-locking compound to a face which is in contact with tape.


Tape guide adjustment driver
Tape guide upper flange
Guide shaft screw
Tape guide upper flange
Screw-locking compound

5-1-3. Tape Path Adjustment Preparations

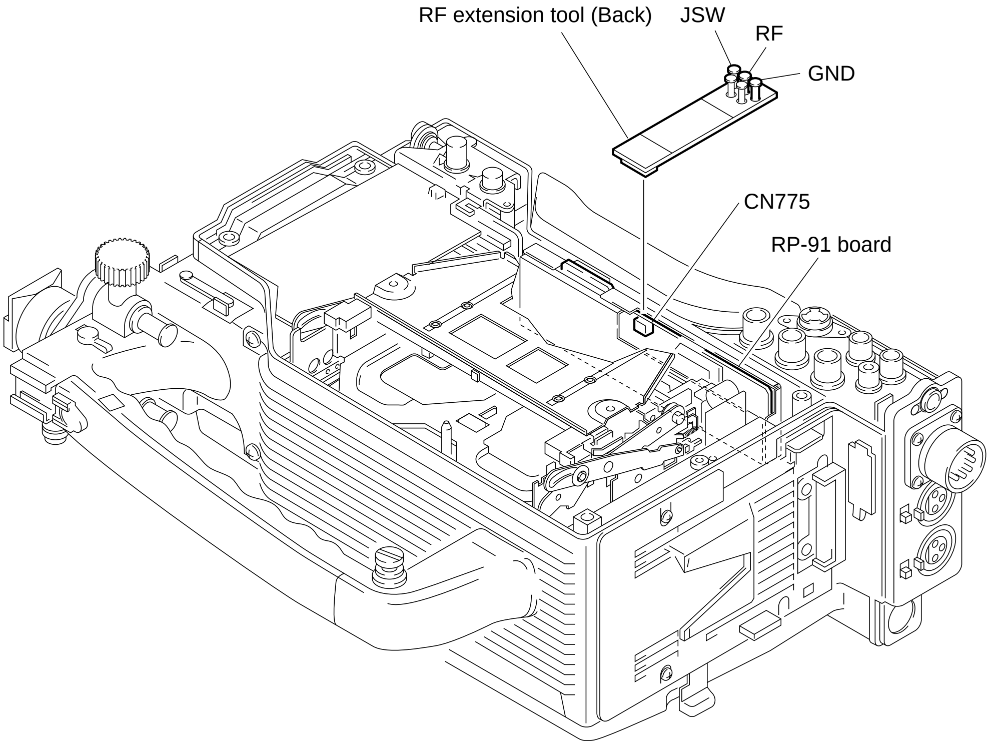
(1) Cassette Compartment
Attach the cassette compartment when performing tape path adjustments. This will enable adjustments to be performed more accurately.

(2) Cleaning
Clean faces that are in contact with tape. For how to clean them, refer to Section 3-4.

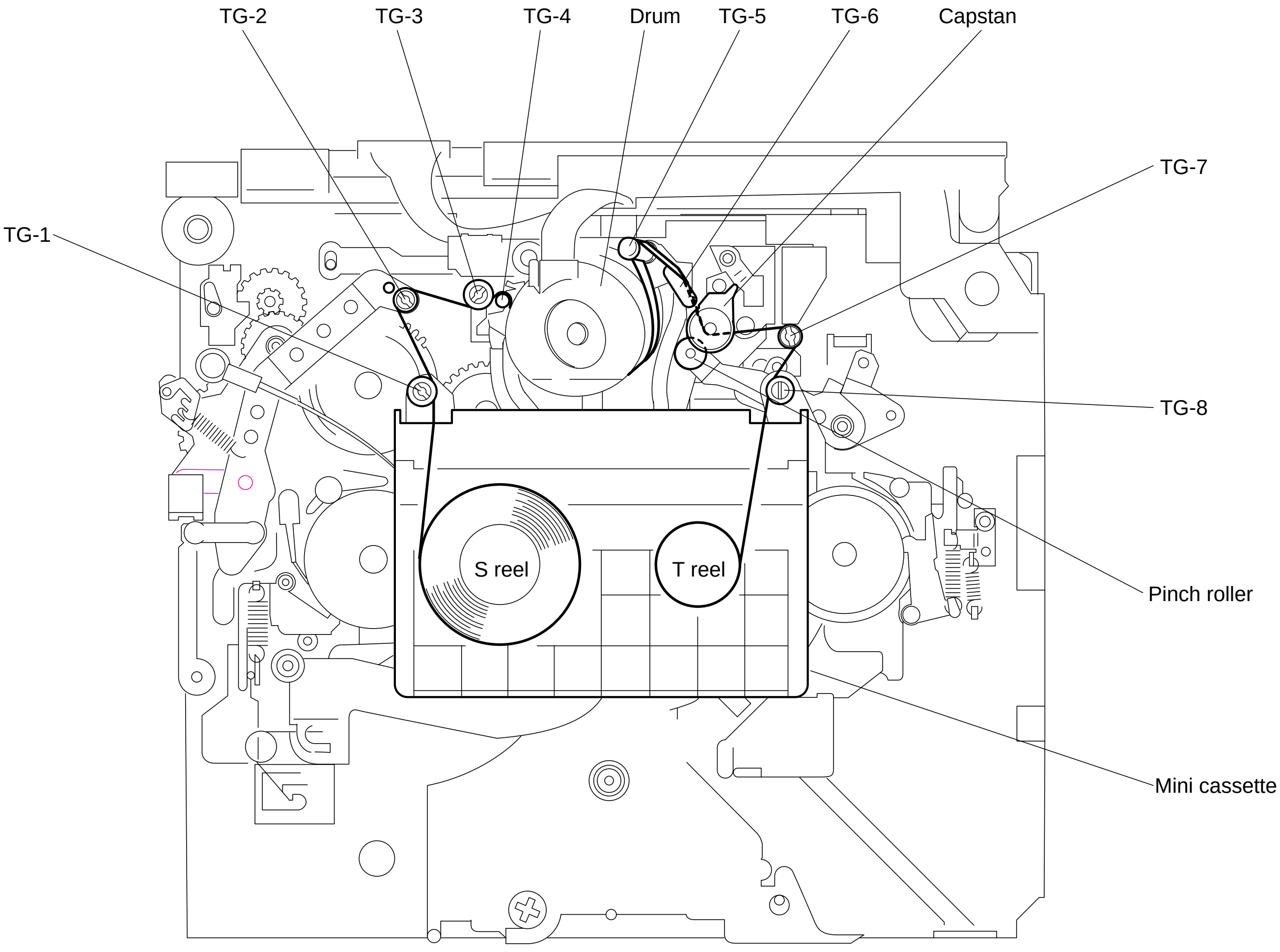
5-1-4. Connection

RF extension tool

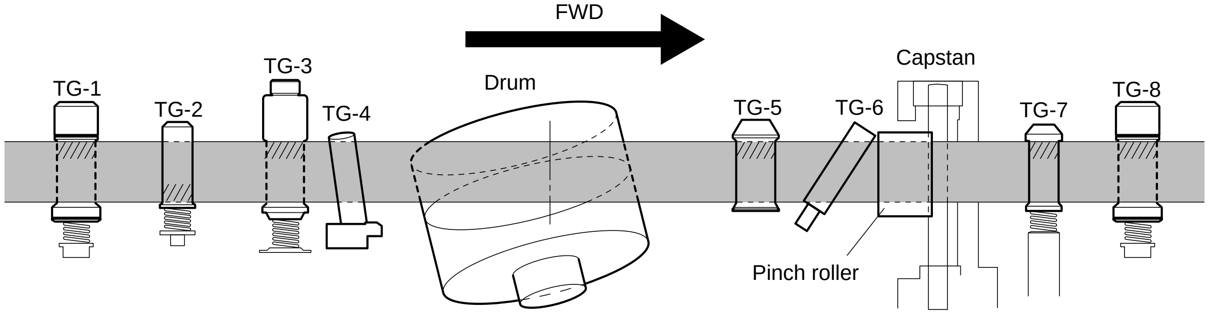
Tool which can extract signals output from connector CN775 of the RP-91 board and can be connected easily to the probe.
Insert the RF extension tool board into CN775 of the RP-91 board.



5-1-5. Drum and Tape Guide Positions


TG-2
TG-3
TG-4
Drum
TG-5
TG-6
Capstan
TG-7
TG-1
TG-8
S reel
T reel
Pinch roller
Mini cassette

5-1-6. Tape Path State


FWD
Capstan
TG-1
TG-2
TG-3
TG-4
Drum
TG-5
TG-6
TG-7
TG-8
Pinch roller

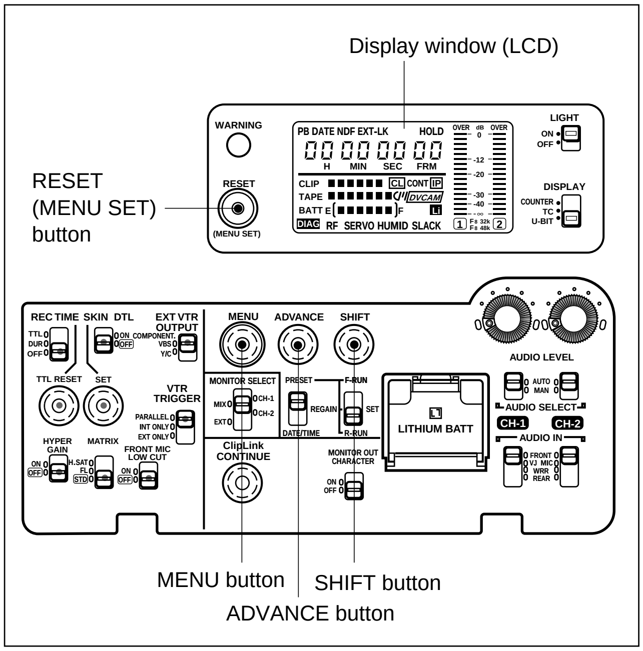
▨ Portions are either contacting or pushing the tape.

5-2. SYSTEM SETTING MENU

The tape path system adjustment is performed by setting the following system setting menu.

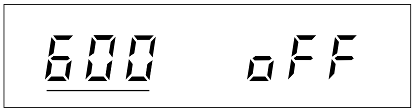
No. 604 tracking adjustment:
Performs recording and playback in the central ITI mode.
This mode is effective only when the power is ON.
When the power is turned OFF, it is automatically set to OFF.
No. 605 switching position adjustment:
Performs automatic adjustment of the switching position.

The method of setting menu No. 604 is as follows.
(Refer to Section 5-8 for how to set menu No. 605 “Switching position adjustment.”)

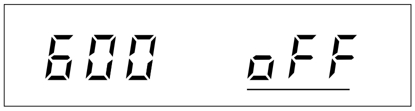


1. Set the maintenance menu, and select Menu No. 601.

(1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after more than 1 second.
The display window (LCD) will display as follows.
(Characters underlined on the display window (LCD) in the description of operations hereafter indicate that they are blinking.)

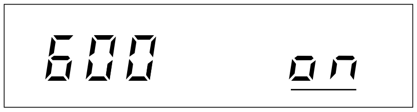


(2) Press the RESET (MENU SET) button once so that “oFF” blinks.
The display window (LCD) will display as follows.



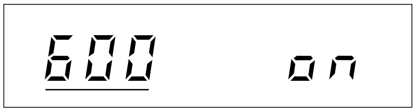
Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will blink alternately.

(3) Press the ADVANCE button once, and select “on.”
The display window (LCD) will display as follows.



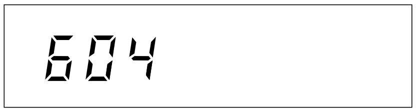
Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

(4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows.



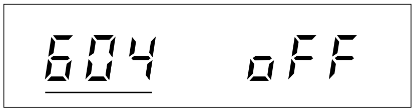
Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

(5) Press the ADVANCE button once to display Menu No. 604.
The display window (LCD) will display as follows.

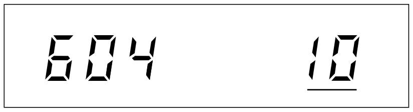


Each time the ADVANCE button is pressed, Menu Nos. are changed as follows.
600 → 601 → 603 → ... → 513 → 600 → 601 → ...
Each time the SHIFT button is pressed, Menu Nos. are changed as follows.
600 → 513 → 509 → ... → 601 → 600 → 513 → ...

4. Press the RESET (MENU SET) button.
The display window (LCD) will display as follows.



5. Press the ADVANCE button to select “10.”
(Each time the ADVANCE button is pressed, “oFF → 10 → 5 → 20 → oFF” is repeatedly displayed.)



6. Press the RESET (MENU SET) button.
“604” is displayed and the mode is set.

5-3. TAPE PATH SYSTEM CHECK

If any setting in Section 5-3-1 and 5-3-2 does not meet the specification, perform adjustments after Section 5-4.

5-3-1. Check of Alignment Tape Playback

Equipment and Tool

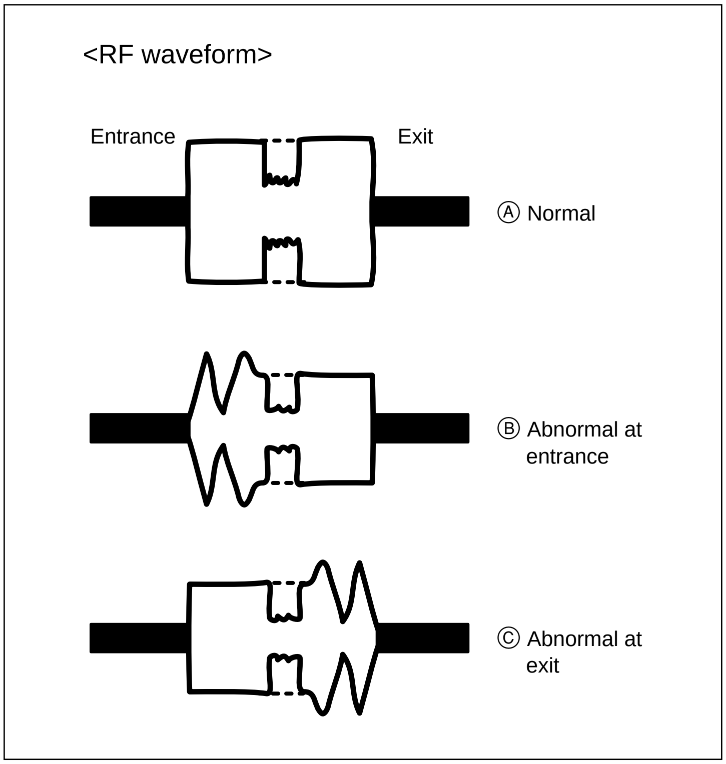
- Alignment tape (XH2-1AST)
- RF extension tool
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
   CH1: RF/RF extension tool (RF waveform)
   CH2: JSW/RF extension tool (Switching waveform)
   Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment. (Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

Checking Method

1. Set the PLAY mode.
2. Check that there are no large curls on the TG-1 upper flange, TG-2 lower flange, TG-3 upper flange, TG-5 upper flange, TG-7 upper flange and TG-8 upper flange. (Refer to Section 5-1-6. Tape Path State.)
3. Check that both the RF waveform at both the entrance and exit is flat on the oscilloscope.



5-3-2. Check of self-recording tape playback

Equipment and Tools

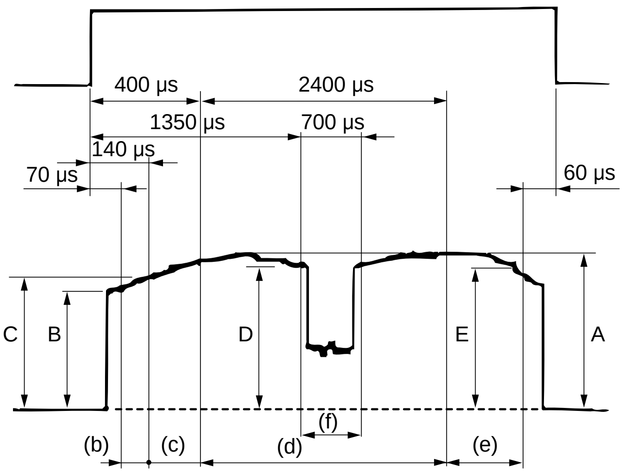
- RF extension tool
- Blanking tape
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
   CH1: RF/RF extension tool (RF waveform)
   CH2: JSW/RF extension tool (Switching waveform)
   Trigger: CH2
3. Insert the blanking tape into the unit.
4. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment. (Refer to Section 5-2.)
5. Set the REC mode, and record the center ITI 10 MHz single signal to the tape from the top for three to ten seconds.

Checking Method

1. Set the PLAY mode, and playback the portion recorded in the setting step 5.
2. Check that there are no large curls on the TG-1 upper flange, TG-2 lower flange, TG-3 upper flange, TG-5 upper flange, TG-7 upper flange and TG-8 upper flange. (Refer to Sections 5-1-5 and 5-1-6.)
3. Check that the RF waveform meets the specification on the oscilloscope.



Specification
B ≧ 0.65 A
C ≧ 0.75 A
D ≧ 0.8 A
E ≧ 0.75 A

Overall max. value : A
Min. value between sections (b) : B
Min. value between sections (c) : C
Min. value between sections (d) : D (Excluding between sections (f))
Min. value between sections (e) : E

5-4. TRACKING ADJUSTMENT

Equipment and Tool

- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

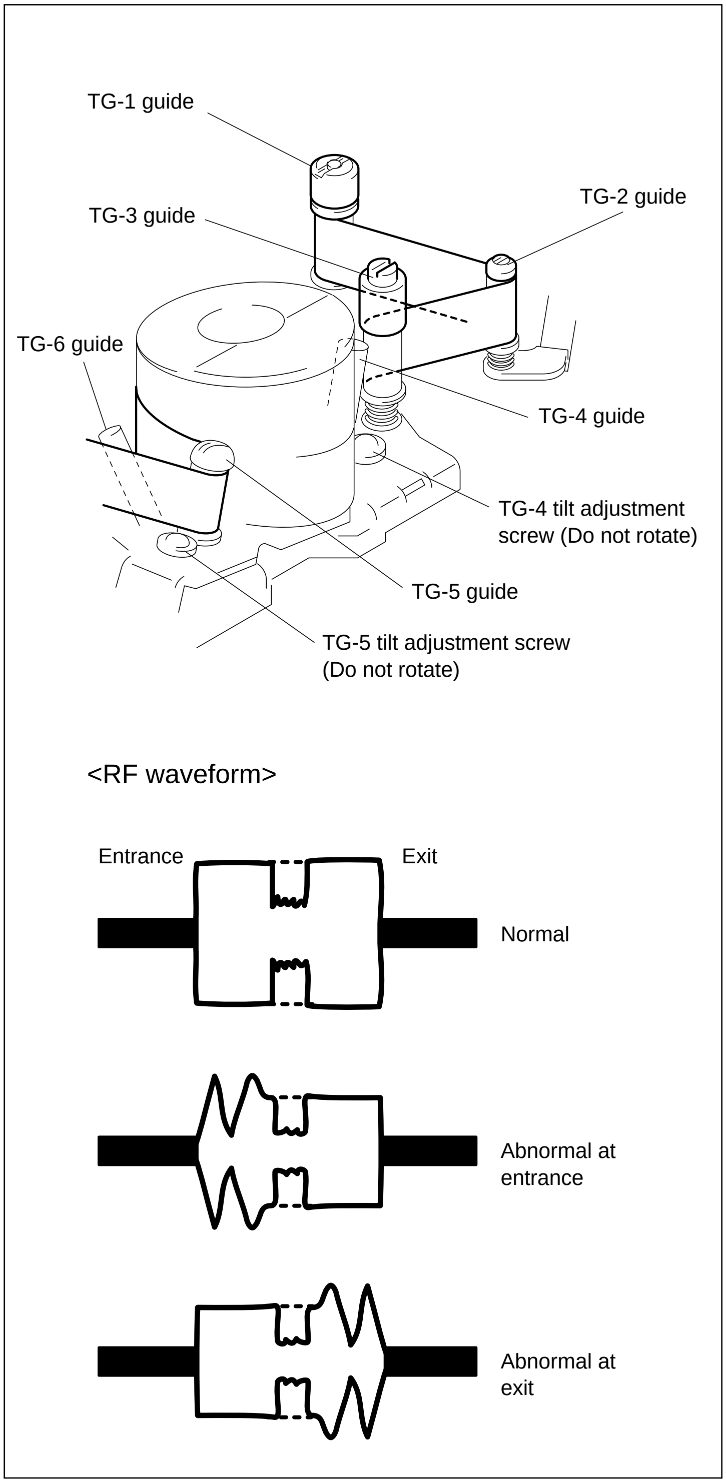
Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
   CH1: RF/RF extension tool (RF waveform)
   CH2: JSW/RF extension tool (Switching waveform)
   Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment. (Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

Adjusting Method

1. Set the PLAY mode.
2. Rotate the upper flange of the TG-3 guide and adjust so that the RF waveform at the entrance becomes flat.
3. Rotate the upper flange of the TG-5 guide and adjust so that the RF waveform at the exit becomes flat.

Note: Do not rotate the tilt adjustment screws of TG-4 and TG-5.


TG-1 guide
TG-2 guide
TG-3 guide
TG-6 guide
TG-4 guide
TG-4 tilt adjustment screw (Do not rotate)
TG-5 guide
TG-5 tilt adjustment screw (Do not rotate)
<RF waveform>
Entrance
Exit
Normal
Abnormal at entrance
Abnormal at exit

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5-5. TG-1, TG-2 AND TG-3 GUIDES ADJUSTMENT

Equipment and Tool

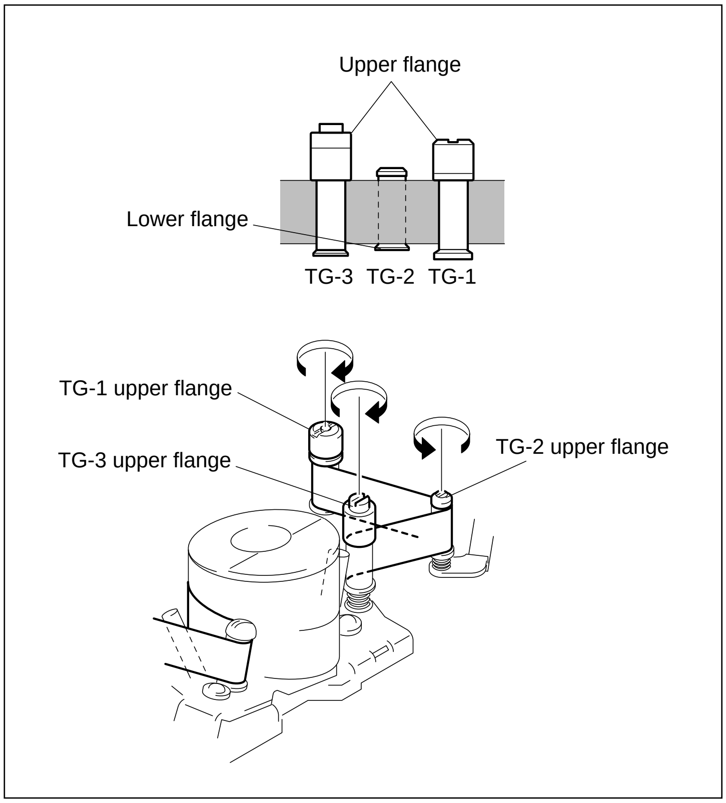
- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

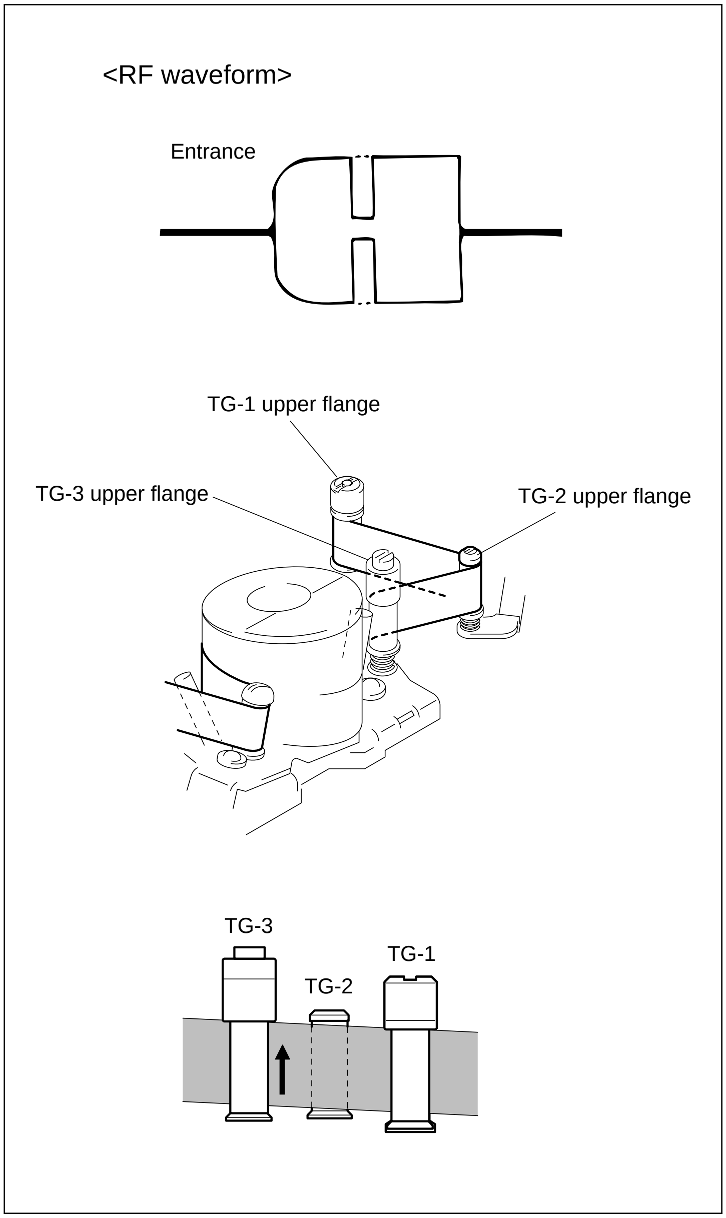
1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
   CH1: RF/RF extension tool (RF waveform)
   CH2: JSW/RF extension tool (Switching waveform)
   Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment. (Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

Adjusting Method

1. Set the PLAY mode.
2. Check that the tape runs along the TG-1 upper flange (no space between the two).
   If it does not, rotate the upper flange in the clockwise direction, and adjust so that it does.
3. Check that the tape runs along the TG-2 lower flange (no space between the two).
   If it does not, rotate the upper flange in the counterclockwise direction, and adjust so that it does.
4. Check that the tape runs along the TG-3 upper flange (no space between the two).
   If it does not, rotate the upper flange in the counterclockwise direction, and adjust so that it does.



5. When performing the adjustments in steps 2 to 4, check that the RF waveform does not change. If the entrance of the tracking waveform is facing down, rotate the TG-2 upper flange in the counterclockwise direction and increase the height of the lower flange so that the RF waveform at the entrance is flat.



6. Set the REV search mode, and check that there are no curls formed at the lower flange of the TG-2 guide. If curled, perform steps (1) and (2).
   (1) Rotate the upper flange of the TG-2 guide in the clockwise direction to remove the curls.
   (2) Rotate the upper flange of the TG-3 guide in the counterclockwise direction by 180°, and check that the tape rises. Then return the nut to its original position.

5-6. TG-7 AND TG-8 GUIDES ADJUSTMENT

Equipment and Tool

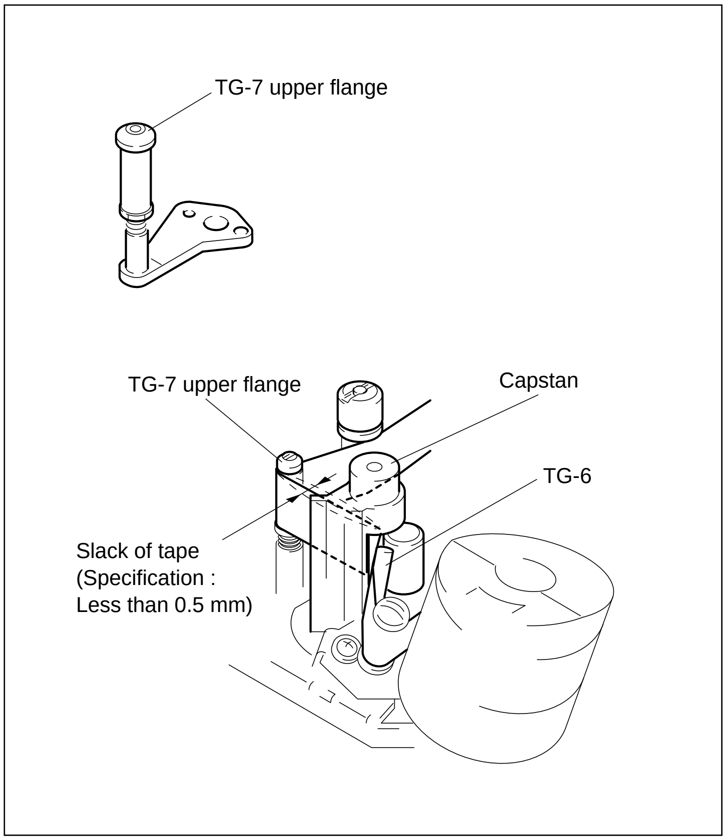
- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
   CH1: RF/RF extension tool (RF waveform)
   CH2: JSW/RF extension tool (Switching waveform)
   Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment. (Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

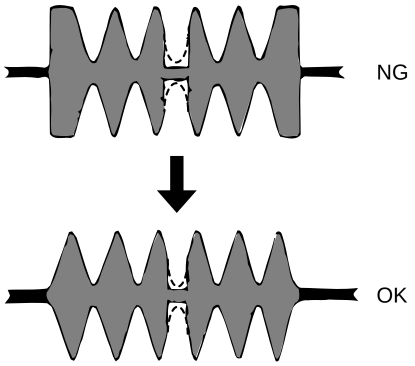
Adjusting Method

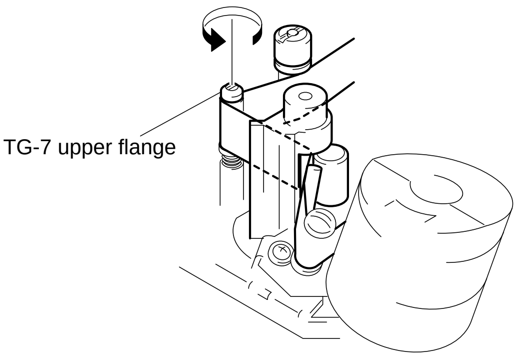
1. Set the PLAY mode.
   Check that the slack of the tape between the capstan and the TG-7 upper flange satisfies the specification.
   If it does not, rotate the TG-7 upper flange, and adjust so that the tape does not slack.


TG-7 upper flange
TG-7 upper flange
Capstan
TG-6
Slack of tape
(Specification :
Less than 0.5 mm)

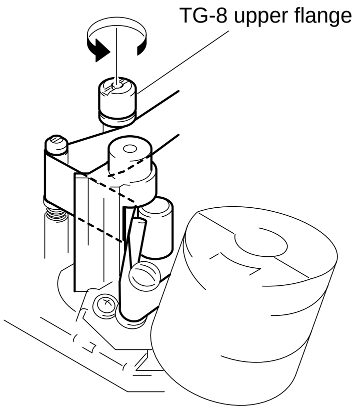
2. Set the REVsearch mode.
   Check the RF waveform at the exit.
   If bad, rotate the TG-7 upper flange in the counterclockwise direction by 90°, and perform steps 1 and 2 again.

<RF waveform>





3. Set the REV search mode. Check that no curls are formed on the TG-8 upper flange.
   If curls are formed, rotate the TG-8 upper flange in the counterclockwise direction and remove the curls.



5-7. CHECK AFTER ADJUSTMENT

Equipment and Tool

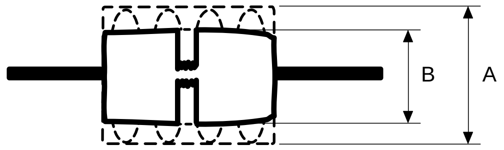
- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
   CH1: RF/RF extension tool (RF waveform)
   CH2: JSW/RF extension tool (Switching waveform)
   Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment. (Refer to Section 5-2.)
4. Insert an alignment tape into the unit.
5. Perform checks after Section 5-7-1.

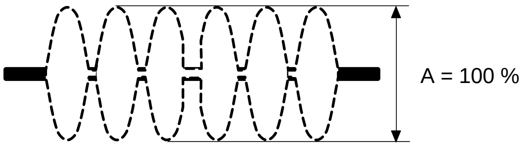
5-7-1. Tracking Check

1. Set the FWD search/REV search mode, assuming that the output level of the RF waveform is A (= 100 %).
2. Set the PLAY mode, assuming that the RF waveform output level is B (= 65 %).
3. Check that the A and B levels are Specification 1.
4. Check to see that the difference in the amplitude between Emax and Emin in the FWD mode is less than 17 % of the amplitude (A = 100 %) in the FWD/REV search mode. (Specification 2)
5. Check to see that no significant fluctuations are observed in the waveform. (Specification 3)

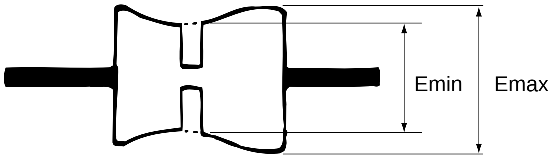


Specification 1
$\frac{B}{A} \fallingdotseq 0.65$

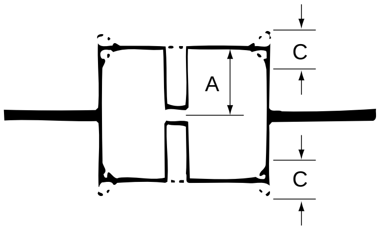
FWD search or REV search



FWD mode



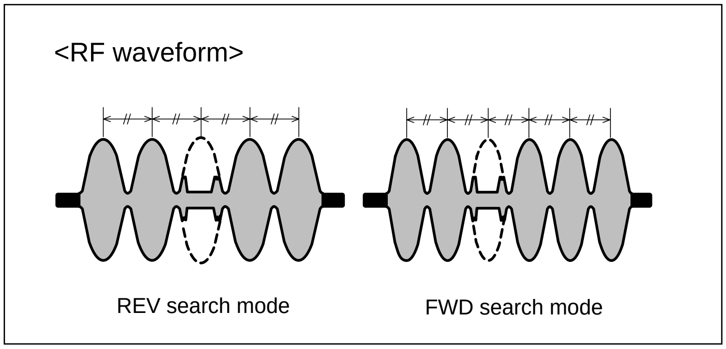
Specification 2
(Emax − Emin) ≦ 17 % or ($\frac{2.5}{15}$ A)



Specification 3
C ≦ $\frac{1}{15}$ A

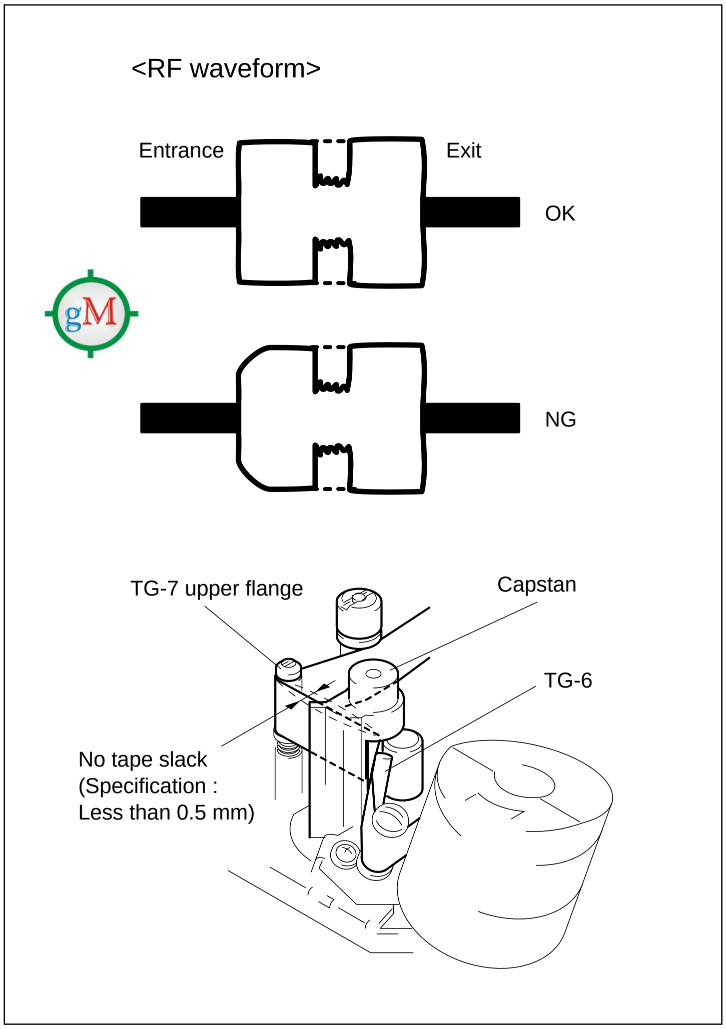
5-7-2. FWD Search and REV Search Check

1. Set the REV seach mode.
   Check that the pitches of the peaks of the RF waveform are equal.
   If not equal, perform 5-4. Tracking Adjustment and 5-6. TG-7 and TG-8 Guides Adjustment.
2. Set the FWD search mode.
   Check that the pitches of the peaks of the RF waveform are equal.
   If not equal, perform 5-4. Tracking Adjustment.


<RF waveform>
REV search mode
FWD search mode

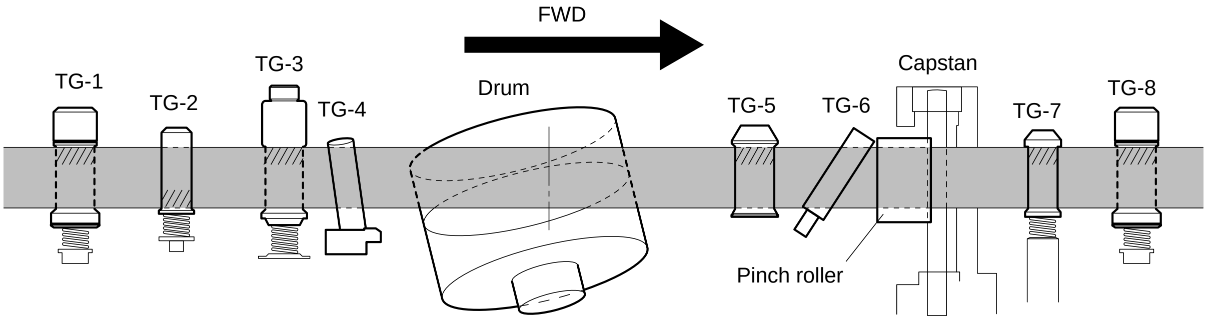
5-7-3. Rising Check

1. Open the PLAY mode, and check that the RF waveform rises horizontally within one second (from when the RF waveform appears on the oscilloscope). Check that the tape does not slack near the capstan at this time.
2. When the PLAY mode is set after the FWD search/REV search mode, and FF/REW mode, check that the RF waveform rises horizontally within one second. Check that the tape does not slack near the capstan at this time.


<RF waveform>
Entrance
Exit
OK
NG
TG-7 upper flange
Capstan
TG-6
No tape slack
(Specification :
Less than 0.5 mm)

5-7-4. Tape Path Check

1. Set the FWD search/REV search mode, and check that there are no large curls on the TG-1 upper flange, TG-2 lower flange, TG-3 upper flange, TG-5 upper flange, TG-7 upper flange, and TG-8 upper flange.


FWD
TG-1
TG-2
TG-3
TG-4
Drum
TG-5
TG-6
Capstan
TG-7
TG-8
Pinch roller

▨ Portions are either contacting or pushing the tape.

5-8. SWITCHING POSITION ADJUSTMENTS

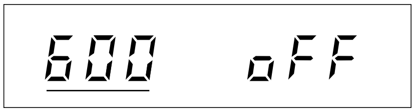
Tools

Alignment tape XH5-1A (for DSR-300)
Alignment tape XH5-1AP (for DSR-300P)

Checking Method

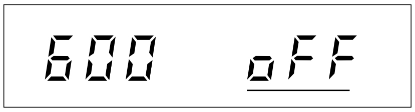
1. Check that there is no tape in the unit.
2. Set the maintenance menu, and select Menu No. 607.

(1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after more than 1 second.
The display window (LCD) will display as follows.
(Characters underlined on the display window (LCD) in the description of operations hereafter indicate that they are blinking.)



600 oFF

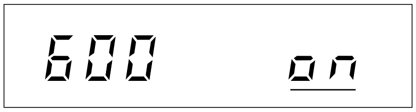
(2) Press the RESET (MENU SET) button once so that "oFF" blinks.
The display window (LCD) will display as follows.



600 oFF

Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

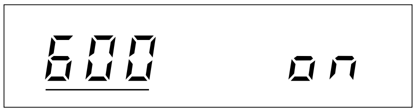
(3) Press the ADVANCE button once, and select "on."
The display window (LCD) will display as follows.



600 on

Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

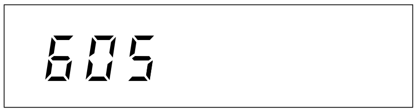
(4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows.



600 on

Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

(5) Press the ADVANCE button or SHIFT button to display Menu No. 605.
The display window (LCD) will display as follows.



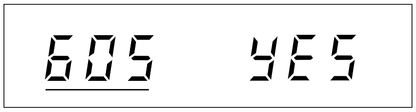
605

Each time the ADVANCE button is pressed, Menu Nos. are changed as follows.
600 → 601 → 603 → ... → 513 → 600 → 601 → ...
Each time the SHIFT button is pressed, Menu Nos. are changed as follows.
600 → 513 → 509 → ... → 601 → 600 → 513 → ...

3. Press the RESET (MENU SET) button.

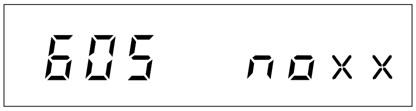
4. Insert the alignment tape XH5-1A/XH5-1AP into the unit. An adjustment is automatically performed, and after the completion of the adjustment, the tape is automatically ejected.

5. Check that the display window (LCD) displays as follows.



605 YES

If the display window (LCD) displays as follows, exit menu No. 605 once, and perform after step 3 again.
If the problem is still not solved, check if the unit is failure.



605 no X X

X X: 30→ Servo lock can not be executed in the playback.
31→ Cannot read adjustment data.
E0→ Cannot save data.
Fd→ Menu not supported.
FE→ Adjustment prohibited (E.g.: Tape loaded).

<Items to be checked>

- Has the tape path adjustment been performed correctly?
- Is a head clogged?

6. Press the MENU button to exit the maintenance menu.
The display window (LCD) will return to the state before the maintenance menu was displayed.

SECTION 6
GENERAL INFORMATION FOR ELECTRICAL ALIGNMENT

6-1. ADJUSTING ITEMS

AA-92 Board

RV201	TONE Level Adjustment	7-3-15

AT-117 Board

CV701	Character Size Adjustment	7-3-1

ES-21 Board

FL101	Chroma Phase Adjustment	7-3-7
RV101	Chroma (VBS) Adjustment	7-3-7
RV102	Chroma (Y/C) Adjustment	7-3-10
RV103	B-Y Level Adjustment	7-3-7
RV104	Y (VBS) Level Adjustment	7-3-8
RV105	Y (Y/C) Level Adjustment	7-3-9

FP-98 Board

CV200	Clock Frequency Adjustment	8-1-1
RV401	CH-1 Audio Level Volume Reference Position Adjustment	8-4-1
RV402	CH-2 Audio Level Volume Reference Position Adjustment	8-4-1
RV403	Limiter Level Adjustment	8-4-3
RV601	CH-1 Monitor Output Level (LINE OUT Level) Adjustment	8-4-2
RV602	CH-2 Monitor Output Level (LINE OUT Level) Adjustment	8-4-2

PA-205 (B) Board

RV1	CCD OUT Level Adjustment	7-3-12

PA-205 (R) Board

RV1	CCD OUT Level Adjustment	7-3-12

Service Menu

PAGE 2

R W.SHAD	7-3-13
G W.SHAD	7-3-13
B W.SHAD	7-3-13

PAGE 3

R FLARE	7-3-14
G FLARE	7-3-14
B FLARE	7-3-14

PAGE 5

Y LEV	7-3-5
R-Y LEV	7-3-5
B-Y LEV	7-3-5
SYNC LEV	7-3-5
S-UP LEV	7-3-5

PAGE 6

Y CLP	7-3-4
R-Y CLP	7-3-4
B-Y CLP	7-3-4

PAGE 7

R-Y C/B	7-3-6
R-Y BST	7-3-7
B-Y C/B	7-3-6
B-Y BST	7-3-7
VF SYNC	7-3-11
VF BLKG	7-3-11

PAGE 8

SC FREQ	7-3-2
SC-H	7-3-3

PAGE 9

VTR R-Y	8-5-5
VTR B-Y	8-5-6
VTR Y	8-5-2
B-Y DELAY	8-5-3
R-Y DELAY	8-5-4

PAGE 10

VTR SYNC	8-5-1
VTR BST	8-5-7
PB VBS	8-5-8
EE S-Y	8-5-9
EE S-C	8-5-10

PAGE 11

SETUP	7-3-8

PAGE 13

TEST	7-3-4, 5
R-Y	7-3-4, 5
B-Y	7-3-4, 5

6-2. EQUIPMENT AND TOOLS REQUIRED

Equipment

Oscilloscope: Tektronix 2445B (200 MHz) or equivalent
Frequency counter: Iwasaki SC-7102 or equivalent
Vectorscope:
Waveform monitor: Tektronix 1765 or equivalent
Monochrome monitor:
Color monitor:
Audio signal generator: Hewlet Packard HP8904 or equivalent
Audio level meter: Hewlet Packard HP3400A or equivalent

Tools

Pattern box: PTB-500, Sony part number J-6029-140-B
Grayscale chart: Sony part number J-6026-130-B
DC power supply: Sony CMA-8/8A or AC-500/550
Extension board: EX-622, Sony part number J-6276-320-A
Tripod adaptor: Sony VCT-U14
Blank tape: Sony DVM30ME, DVM30NME or equivalent
Alignment tape: For DSR-300: XH5-1A, Sony part number: 8-967-999-21
For DSR-300P: XH5-1AP, Sony part number: 8-967-999-25
S-BNC video cable: Sony part number J-6381-380-A

http://getMANUAL.com

Contents of Alignment Tape for DSR-300: XH5-1A

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO		
Black burst	23 : 59 : 00	60	No signal		32 kHz 4 ch
75 % full color bars	00 : 00	60	1 kHz		
60 % multi burst	01 : 00	60	20 Hz		
Bowtie with mod 12.5T	02 : 00	30	14.5 kHz		
Shallow ramp	02 : 30	30	10 kHz		
	03 : 00	30	No signal		
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS		
Line 17	04 : 00	40	1 ch	1 kHz	
75 % full color bars	04 : 40	40	2 ch		
Quad phase	05 : 20	40	3 ch		
	06 : 00	40	4 ch		
Black burst	06 : 40	5	No signal		
	06 : 45	5			48 kHz 2 ch
60 % multi burst (for composite)	06 : 50	60	1 kHz		
Mod 12.5T	07 : 50	30	20 Hz		
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz		
	08 : 50	30	10 kHz		
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS		
Chroma noise	09 : 50	30	1 kHz		
Line 17	10 : 20	30			
75 % full color bars	10 : 50	180			
60 % multi burst	13 : 50	60			
Mod 12.5T	14 : 50	30			
Shallow ramp	15 : 20	60			
75 % full color bars	16 : 20	100			
75 % full color bars (R-Y OFF)	18 : 00	180			
75 % full color bars (B-Y OFF)	21 : 00	180			
Blanking marker	24 : 00	180			
Line 17 (R-Y OFF)	27 : 00	180			
Line 17 (B-Y OFF)	30 : 00	180			

∗ Audio levels are −20 dBFS (Reference), except 1 kHz 0 dBFS part.

Contents of Alignment Tape for DSR-300P: XH5-1AP

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO		
Black burst	23 : 59 : 00	60	No signal		32 kHz 4 ch
100 % full color bars	00 : 00	60	1 kHz		
60 % multi burst	01 : 00	60	20 Hz		
Bowtie with mod 10T	02 : 00	30	14.5 kHz		
Shallow ramp	02 : 30	30	10 kHz		
	03 : 00	30	No signal		
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS		
Line 17	04 : 00	40	1 ch	1 kHz	
100 % full color bars	04 : 40	40	2 ch		
Quad phase	05 : 20	40	3 ch		
	06 : 00	40	4 ch		
Black burst	06 : 40	5	No signal		
	06 : 45	5			48 kHz 2 ch
60 % multi burst (for composite)	06 : 50	60	1 kHz		
Mod 10T	07 : 50	30	20 Hz		
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz		
	08 : 50	30	10 kHz		
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS		
Chroma noise	09 : 50	30	1 kHz		
Line 17	10 : 20	30			
100 % full color bars	10 : 50	180			
60 % multi burst	13 : 50	60			
Mod 10T	14 : 50	30			
Shallow ramp	15 : 20	60			
100 % full color bars	16 : 20	100			
100 % full color bars (R-Y OFF)	18 : 00	180			
100 % full color bars (B-Y OFF)	21 : 00	180			
Blanking marker	24 : 00	180			
Line 17 (R-Y OFF)	27 : 00	180			
Line 17 (B-Y OFF)	30 : 00	180			

∗ Audio levels are −18 dBFS (Reference), except 1 kHz 0 dBFS part.

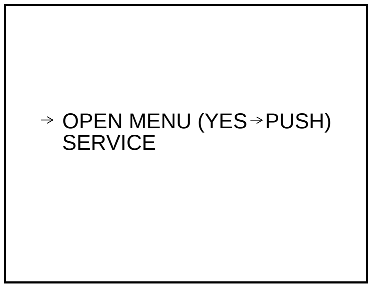
6-3. MENU OPERATION

Service Mode

There are the three major menus, BASIC menu and ADVANCE menu for user, and SERVICE menu.
The unit enters the service mode by setting the switch S811 (OPE/ADJ) on the FP-98 board to ADJ position.

In service mode, the following menu select screen is displayed:

Menu select screen



```
→ OPEN MENU (YES→PUSH)
  SERVICE
```

Operation of Menu Select Screen

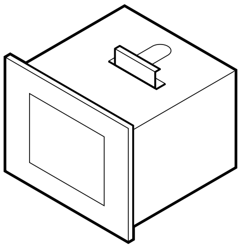
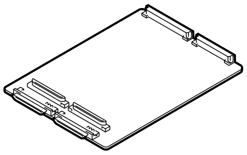
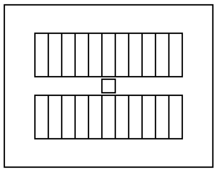
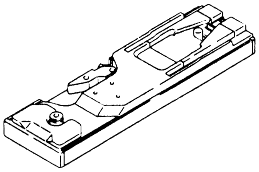
1. To move the cursor
   Each time the menu switch is pushed toward “OFF,” the cursor moves in between the OPEN MENU and menu name.
   The status screen is displayed by pulling the menu switch toward “ON.”
   The cursor can be moved by turning the menu dial during blinking the cursor.
2. To select the menu
   Turn the menu dial during blinking the menu name. As turning of the MENU dial, the following menu names will be appeared cyclically.
   SERVICE ⇔ BASIC ⇔ ADVANCE ⇔ SERVICE
   When the cursor is moved to the menu name with menu dial, the cursor blinks. In this case, change the menu name after changing the blinking section from cursor to menu name by turning the menu dial.
   When the menu dial is pressed during blinking the menu name, the cursor blinks.
3. To open the selected menu
   Display the menu name to be opened. Move the cursor to OPEN MENU and push the menu dial. The first page of the selected menu is displayed.
   After the menu selection, usual menu operation can be carried out.
   When the selected menu had been finished, menu select screen is displayed.

SECTION 7
CAMERA BLOCK ELECTRICAL ALIGNMENT

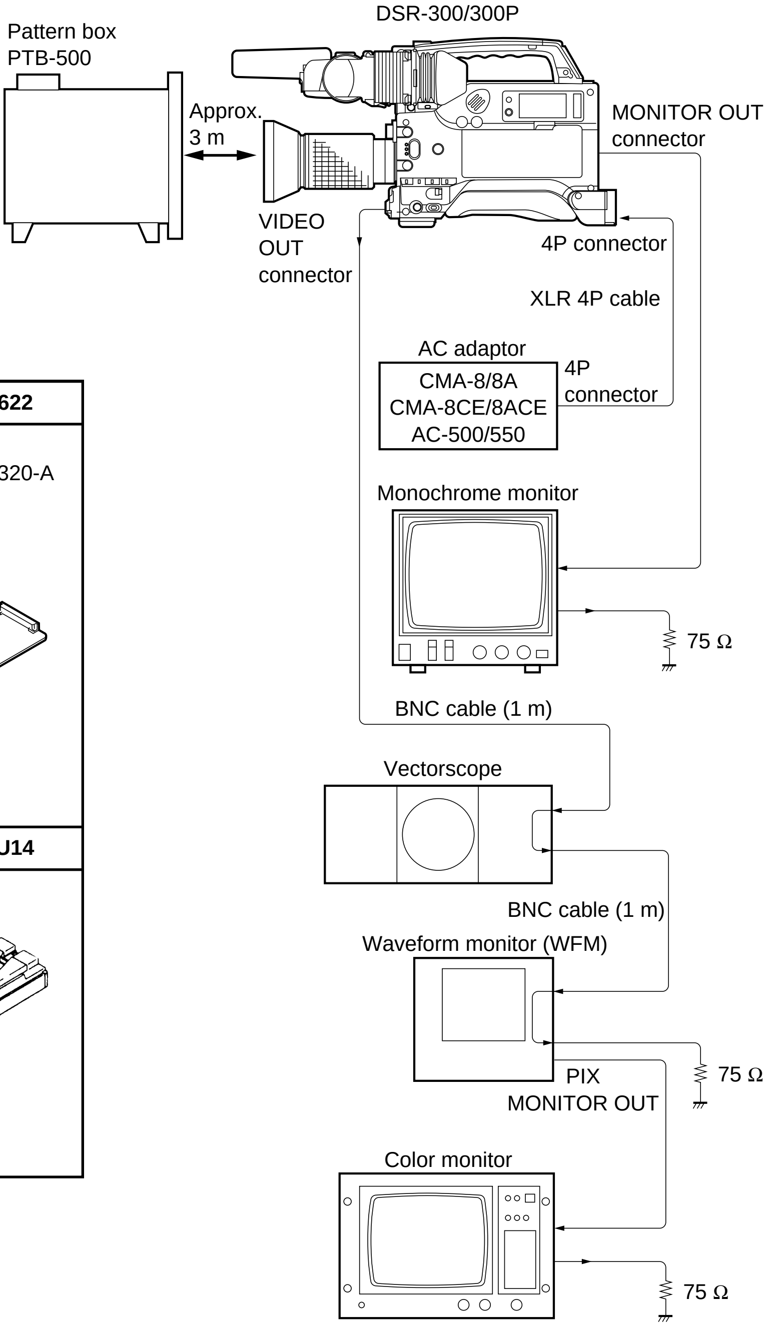
7-1. PREPARATION

7-1-1. Equipment Required

- Oscilloscope (200 MHz or more)
- Vectorscope
- Waveform monitor
  (Tektronix 1765 or equivalent)
- Monochrome monitor
- Color monitor
- AC adaptor
  (Sony CMA-8/8A/8CE/8ACE, AC-500/550)
- Frequency counter

Pattern box PTB-500	**Extension board EX-622**
Sony part number: J-6029-140-B • Light source for test chart 	Sony part number: J-6276-320-A 
Grayscale chart	**Tripod adaptor VCT-U14**
Sony part number: J-6026-130-B 	

7-1-2. Connection


DSR-300/300P
Pattern box
PTB-500
Approx.
3 m
MONITOR OUT
connector
VIDEO
OUT
connector
4P connector
XLR 4P cable
AC adaptor
CMA-8/8A
CMA-8CE/8ACE
AC-500/550
4P
connector
Monochrome monitor
75 Ω
BNC cable (1 m)
Vectorscope
BNC cable (1 m)
Waveform monitor (WFM)
75 Ω
PIX
MONITOR OUT
Color monitor
75 Ω

Note: When adjusting the camera block, be sure to use VIDEO OUT except for 7-3-1. Character Size Adjustment.

7-1-3. Switch Setting before Adjustment

Switch setting for camera side

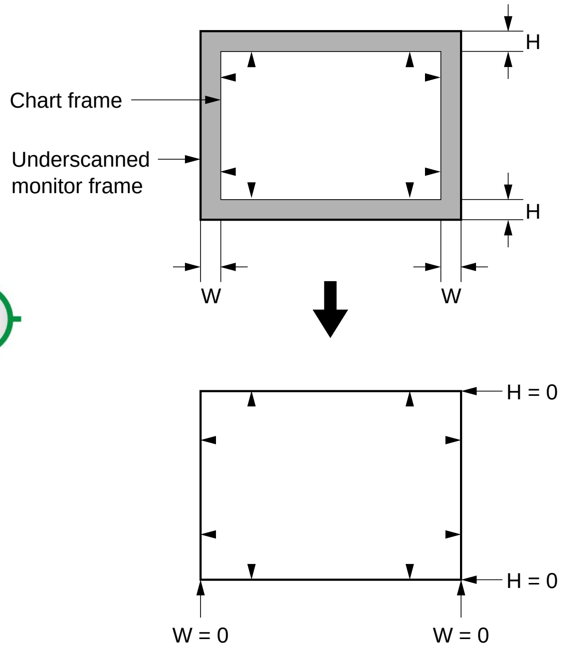
GAIN switch:	LOW (0 dB)
OUTPUT/DL/DCC+ switch:	CAM/DCC+
WHITE BAL switch:	PRESET
FILTER control:	1
SHUTTER switch:	OFF
ZEBRA switch:	OFF
HYPER GAIN switch:	OFF
EZ MODE switch:	OFF
MATRIX:	STD
ATW:	OFF
IRIS (Lens):	Manual
ZOOM (Lens):	Manual

7-1-4. Notes on Adjustment

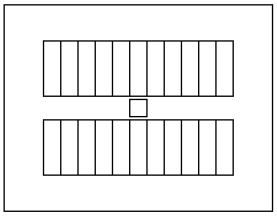
(1) Before adjustment, be sure to allow for 10-minute warm-up time.

(2) When using the SERVICE menu, refer to “2-7. SERVICE MODE OPERATION.”

(3) Unless otherwise specified, the sentence “chart frame = underscanned monitor frame” is written about the shooting condition.
In this case, make sure that the lens is best focused. Then adjust the zoom control of the lens so that the chart frame touches the underscanned monitor frame.



In case of the Grayscale chart:

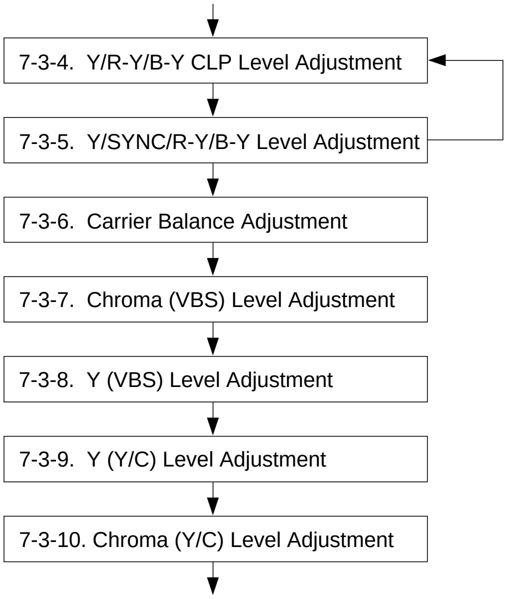


(Underscanned monitor screen)

(4) When replacing the CCD unit, be sure to perform the following adjustment items.
7-3-13. Shading Adjustment
7-3-14. Flare Adjustment

(5) If the amplitude level of the measured waveform is blurred on the waveform monitor screen, set the RESPONSE switch on the waveform monitor to “LUM” mode.

(6) Be sure to perform the following adjustments successively.


7-3-4. Y/R-Y/B-Y CLP Level Adjustment
7-3-5. Y/SYNC/R-Y/B-Y Level Adjustment
7-3-6. Carrier Balance Adjustment
7-3-7. Chroma (VBS) Level Adjustment
7-3-8. Y (VBS) Level Adjustment
7-3-9. Y (Y/C) Level Adjustment
7-3-10. Chroma (Y/C) Level Adjustment

7-1-5. Adjustment Item

- 7-2. Preparation before Adjustment
  - 7-2-1. Color Bar Signal Confirmation
  - 7-2-2. Sensitivity Confirmation
- 7-3. Adjustment
  - 7-3-1. Character Size Adjustment
  - 7-3-2. Subcarrier Frequency Adjustment
  - 7-3-3. INT SC-H Phase Adjustment
  - 7-3-4. Y/R-Y/B-Y CLP Level Adjustment
  - 7-3-5. Y/SYNC/R-Y/B-Y Level Adjustment
  - 7-3-6. Carrier Balance Adjustment
  - 7-3-7. Chroma (VBS) Level Adjustment
  - 7-3-8. Y (VBS) Level Adjustment
  - 7-3-9. Y (Y/C) Level Adjustment
  - 7-3-10. Chroma (Y/C) Level Adjustment
  - 7-3-11. VF SYNC/BLKG Level Adjustment
  - 7-3-12. CCD Output Level Adjustment
  - 7-3-13. Shading Adjustment
  - 7-3-14. Flare Adjustment
  - 7-3-15. TONE Level Adjustment

7-2. PREPARATION BEFORE ADJUSTMENT

Note 1: Before adjustment, connect the equipments referring to “7-1-2. Connection.”

Note 2: Before adjustment, turn on POWER switch and allow for 10 minutes warm-up time.

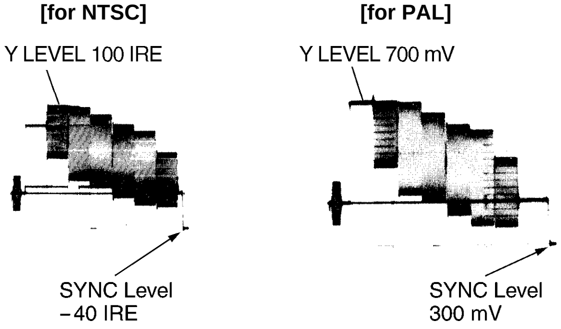
7-2-1. Color Bar Signal Confirmation

Equipment: Vectorscope, Waveform monitor

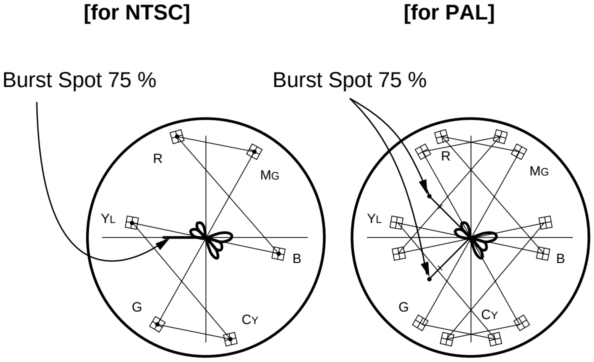
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS

Test point: VIDEO OUT connector/camera side

Specification:



- Chroma Level
  Confirm that the beam spots of each color (R, YL, G, CY, B and MG) are inside the “⊞” mark.



Note:
- **Partial difference between scale and signal level is caused by photographic error.**
- **If the specifications are not met, carry out from “7-3-3. INT SC Phase Adjustment” through “7-3-10. Chroma (Y/C) Level Adjustment.”**

7-2-2. Sensitivity Confirmation

Object: Overall white

Light: 3200 K, 2000 lux
(If the pattern box is used, set the AUTO mode.)

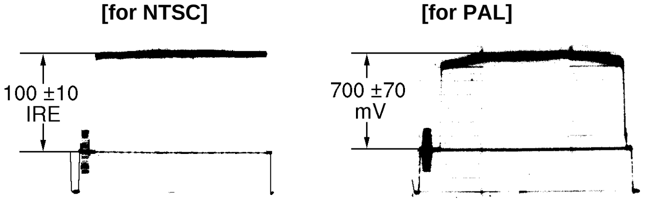
Equipment: Waveform monitor

Preparation:

1. Adjust the zoom control at “TELE” so that the white pattern frame matches the underscanned picture frame on the screen.
2. Lens iris → F11
3. OUTPUT/DL/DCC+ switch/camera side → CAM/DCC+
4. WHITE BAL switch/camera side → PRESET

Test point: VIDEO OUT connector/camera side

Specification: 100 ± 10 IRE (for NTSC)
700 ± 70 mV (for PAL)

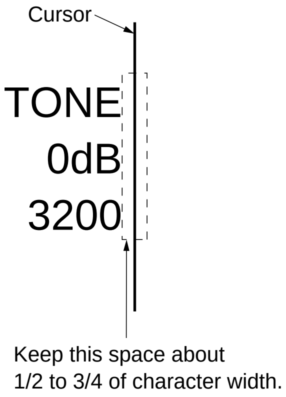


Note: If the specification is not met, perform “7-3-12. CCD OUT Level Adjustment.”

7-3. ADJUSTMENT

7-3-1. Character Size Adjustment

Equipment: Monochrome monitor
Preparation: MONITOR OUT CHARACTER → ON
Test point: MONITOR OUT
Adjusting point: CV701/AT-117 board
Specification:



7-3-2. Subcarrier Frequency Adjustment

Equipment: Frequency counter
To be extended: ES-21 board
Test point: TP801 (GND: E801)/ES-21 board
Adjusting point: SERVICE menu "PAGE 8" → SC FREQ:
Perform adjustment by turning the MENU dial, then store the data by pushing the MENU dial.
Specification: 3,579,545 ±10 Hz (for NTSC)
4,433,618 ±10 Hz (for PAL)

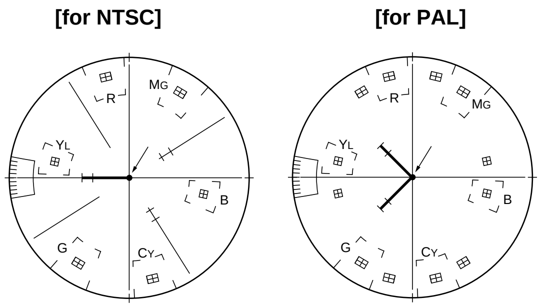
7-3-3. INT SC-H Phase Adjustment

Note: **When performing the adjustment, be sure to use Tektronix waveform monitor type 1765 with SC-H phase measuring function. If any other equipment is used, perform adjustment after reading the equipment's instruction manual throughout.**

Equipment: Waveform monitor (SC-H Phase mode)
Preparation: Waveform monitor → SC-H mode
Test point: VIDEO OUT/camera side

Adjustment Procedure

- SERVICE menu "PAGE 8" → SC-H
- Adjust the phase relationship between SC (Burst) and H beam spot correctly by turning the MENU dial, then store the data by pushing the MENU dial.


[for NTSC] **[for PAL]**

Note: **After this adjustment, set the mode of Tektronix waveform monitor 1765 to "WFM" mode.**

7-3-4. Y/R-Y/B-Y CLP Level Adjustment

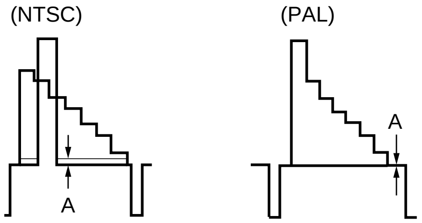
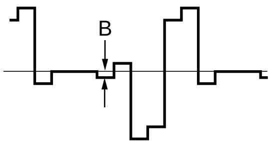
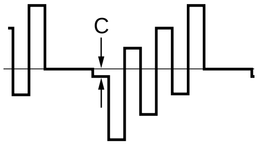
Equipment: Oscilloscope
To be extended: ES-21 board
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS

- Solder SL401 on the ES-21 board.
- Measure the levels at TP193, TP195, and TP197 after the termination with 75 Ω resistor.

Trigger: HD (TP149/extension board)

Adjustment Procedure

1. Select “PAGE 13” of SERVICE menu. Make sure that TEST is “OFF,” and R-Y and B-Y modes are “ON.”
2. SERVICE menu “PAGE 6”
   → Y CLP:
   R-Y CLP:
   B-Y CLP:
3. Perform adjustment by turning the MENU dial, then store the data by pushing the MENU dial.
   Note: In case of Y CLP for NTSC model, perform the following adjustments:
   ① Select “PAGE 9” of SERVICE menu, and set the “SETUP” to “OFF.”
   ② Select “PAGE 6” of SERVICE menu, and move the cursor to Y CLP.
   ③ Adjustment: A = 0 ±5 mV
   ④ Select “PAGE 9” of SERVICE menu, and set the “SETUP” to “ON.”
   ⑤ And return to “PAGE 6.”
   Extension board (GND: TP194)/ES-21 board

Item	Test Point	Specification
Y CLP	TP193	A = 0 ±5 mV 
R-Y CLP	TP195	B = 0 ±5 mV 
B-Y CLP	TP197	C = 0 ±5 mV 

Note: After adjustment, remove the solder from SL-401.

7-3-5. Y/SYNC/R-Y/B-Y Level Adjustment

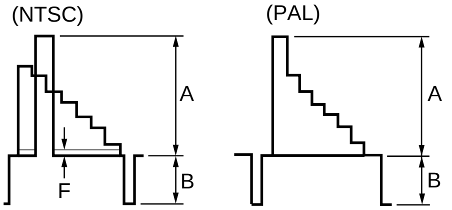
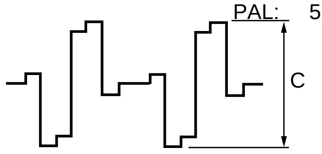
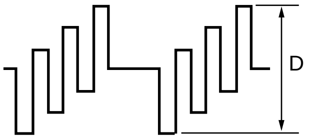
Equipment: Oscilloscope
To be extended: ES-21 board
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS

- Solder SL401 on the ES-21 board.
- Measure the levels at TP193, TP195, and TP197 after the termination with 75 Ω resistor.

Trigger: HD (TP149/extension board)

Adjustment Procedure

1. Select “PAGE 13” of SERVICE menu. Make sure that TEST is “OFF,” and R-Y and B-Y modes are “ON.”
2. SERVICE menu “PAGE 5”
   → Y LEV:
   R-Y LEV:
   B-Y LEV:
   SYNC LEV:
   S-UP LEV:
3. Perform adjustment by turning the MENU dial, then store the data by pushing the MENU dial.
   Note: In case of Y LEV for NTSC model, perform the following adjustments:
   ① Move the cursor to Y LEV.
   ② Adjust the “A” of Y LEV level.
   ③ Move the cursor to S-UP LEV, and adjust the “F” of setup level.
   ④ Repeat steps ① through ③ several times.
   Extension board (GND: TP194)/ES-21 board

Item	Test Point	Specification
Y LEV	TP193	NTSC: A = 714 ±10 mV F = 54 ±5 mV PAL: A = 700 ±10 mV
SYNC LEV	TP193	NTSC: B = 286 ±5 mV PAL: B = 300 ±5 mV 
R-Y LEV	TP195	NTSC: 756 ±20 mV PAL: 525 ±20 mV 
B-Y LEV	TP197	NTSC: 756 ±20 mV PAL: 525 ±20 mV 

Note: After adjustment, remove the solder from SL-401.

http://getMANUAL.com

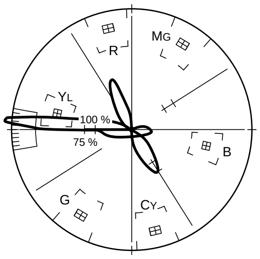
7-3-6. Carrier Balance Adjustment

Equipment: Verctorscope (MAX GAIN)
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS
Test point: VIDEO OUT connector/camera side

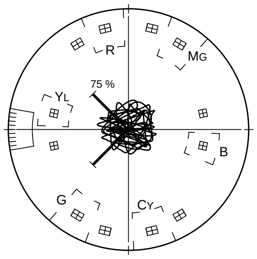
Adjustment Procedure

1. SERVICE menu “PAGE 7”
   → R-Y C/B: } Adjust alternately
   B-Y C/B: }
2. Move the cursor to R-Y C/B or B-Y C/B with STATUS/MENU switch, and adjust the beam spot so that it is in the center of the vectorscope by turning the MENU dial, then store the data by pushing the MENU dial.

[for NTSC]



[for PAL]



7-3-7. Chroma (VBS) Level Adjustment

Note: **Be sure to use the specified vectorscope which is conformed to the SET UP 0 function.**

Equipment: Verctorscope
To be extended: ES-21 board
Preparation:

- GAIN switch/Verctorscope → 75 % CAL
- Adjust the PHASE control on the vectorscope so that the burst spot is overlapped to the 75 % axis.
- OUTPUT/DL/DCC+ switch/camera side → BARS

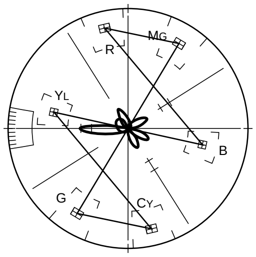
Test point: VIDEO OUT connector/camera side

Adjustment Procedure

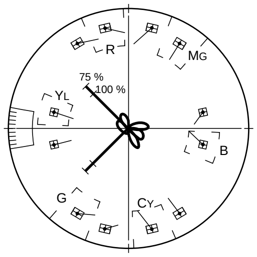
1. **for NTSC**
   - SERVICE menu “PAGE 7”
     → B-Y BST :
     Note: **In case of NTSC, make sure that “R-Y BST” is “0.”**
   - Adjust the burst spot so that it is located at 75 % scale mark on the vectorscope screen by turning the MENU dial, then store the data by pushing the MENU dial.

   for PAL
   - SERVICE menu “PAGE 7”
     → R-Y BST :
     B-Y BST :
   - Adjust “R-Y BST” and “B-Y BST” alternately so that burst spot is located at 75 % scale mark on the vectorscope screen by turning the MENU dial, then store the data by pushing the MENU dial.
2. Adjust the following controls alternately so that each beam spot stays inside the reference frame “4.”
   ⊘RV103 (B-Y LEV)/ES-21 board
   ⊘FL101 (PHASE)/ES-21 board
   ⊘RV101 (CHROMA VBS LEV)/ ES-21 board
3. Perform above step 1 again.

[for NTSC]



[for PAL]



7-3-8. Y (VBS) Level Adjustment

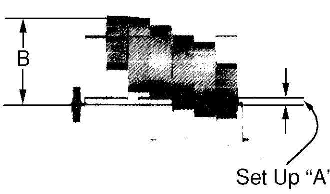
Equipment: Waveform monitor
To be extended: ES-21 board
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS
Test point: VIDEO OUT connector/camera side

Adjustment Procedure

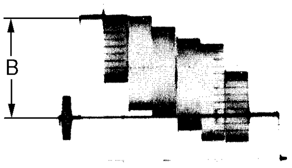
1. **for NTSC**
   - SERVICE menu “PAGE 9”
     → SET UP: ON
     MAT DEST: SMPTE
   - SERVICE menu “PAGE 5”
     → S-UP LEV:
     Perform adjustment by turning the MENU dial, then store the data by pushing the MENU dial.
     Specification: A =7.5 ±0.5 IRE (See below waveform)

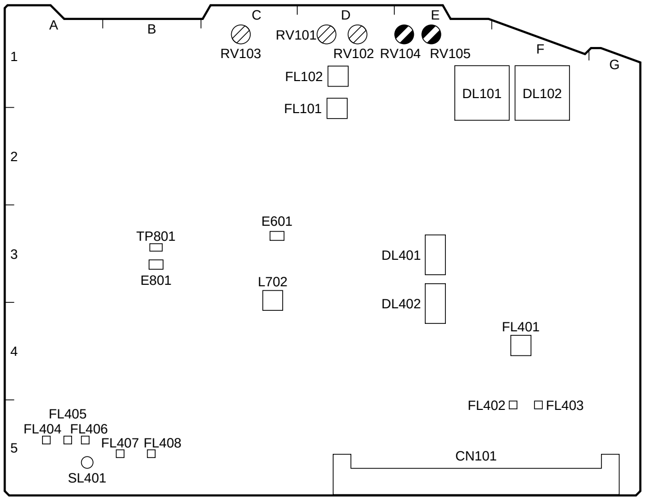
   for PAL
   - SERVICE menu “PAGE 9”
     → COMP LEV: 525 (not 700)
2. **Adjusting point:** ⊘RV104 (Y LEVEL)/ES-21 board
   Specification: for NTSC B = 100 ±2 IRE
   for PAL B = 700 ±10 mV

[for NTSC]



[for PAL]




A
B
C
D
E
F
G
1
2
3
4
5
RV103
RV101
RV102
RV104
RV105
FL102
FL101
DL101
DL102
TP801
E801
E601
L702
DL401
DL402
FL401
FL402
FL403
FL405
FL404
FL406
FL407
FL408
SL401
CN101

ES-21 BOARD (A SIDE)

7-3-9. Y (Y/C) Level Adjustment

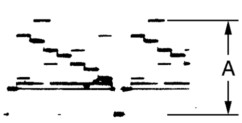
Equipment: Oscilloscope
To be extended: ES-21 board
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS
EXT VTR OUTPUT switch/camera side → Y/C

- Solder SL401 on the ES-21 board.
- Measure the level at TP189 after the termination with 75 Ω resistor.

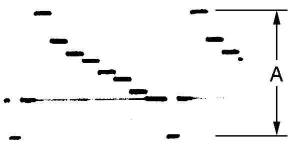
Test point: TP189 (GND: TP190)/extension board
Trigger: HD (TP149/extension board)

Adjusting point: ⊘RV105 (Y LEVEL)/ES-21 board
Specification: A = 1.00 ±0.02 V

[for NTSC]



[for PAL]



Note: **After adjustment, remove the solder from SL-401.**

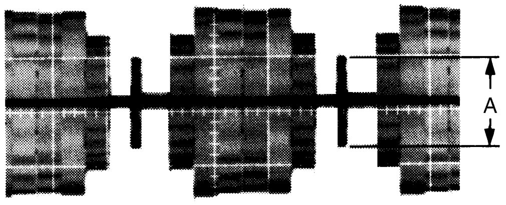
7-3-10. Chroma (Y/C) Level Adjustment

Equipment: Oscilloscope
To be extended: ES-21 board
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS
EXT VTR OUTPUT switch/camera side → Y/C

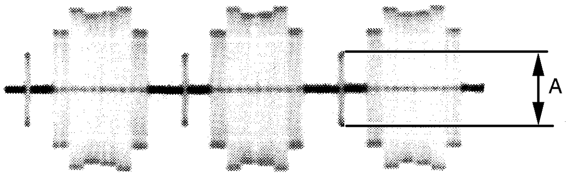
- Solder SL401 on the ES-21 board.
- Measure the level at TP189 after the termination with 75 Ω resistor.

Test point: TP199 (GND: TP200)/extension board
Trigger: HD (TP149/extension board)
Adjusting point: ⊘RV102 (CHROMA (Y/C) LEV)/ES-21 board
Specification: for NTSC A = 286 ±10 mV
for PAL A = 300 ±10 mV

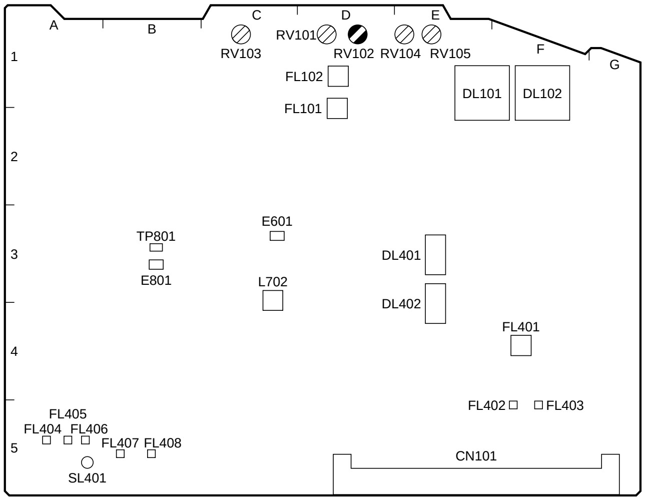
[for NTSC]



[for PAL]



Note: After adjustment, remove the solder from SL-401.


A
B
C
D
E
F
G
1
2
3
4
5
RV103
RV101
RV102
RV104
RV105
FL102
FL101
DL101
DL102
TP801
E801
E601
L702
DL401
DL402
FL401
FL402
FL403
FL405
FL404
FL406
FL407
FL408
SL401
CN101

ES-21 BOARD (A SIDE)

7-3-11. VF SYNC/BLKG Level Adjustment

Equipment: Oscilloscope
To be extended: ES-21 board
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS

- If no viewfinder (DXF-701) is loaded, terminate TP125 with 3 kΩ resistor.

Trigger: HD (TP149/extension board)

Adjustment Procedure

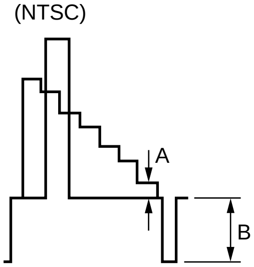
1. SERVICE menu "PAGE 7"
   → VF SYNC
   VF BLKG

Note: First, perform "VF BLKG" adjustment, then "VF SYNC" adjustment.

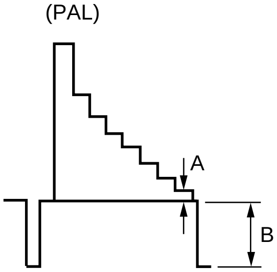
2. Perform adjustment by turning the MENU dial, then store the data by pushing the MENU dial.
   Extension board (GND: TP126)/ES-21 board

Item	Test Point	Specification
VF BLKG	TP125	A = 50 ±10 mV
VF SYNC	TP125	NTSC: B = 290 ±10 mV PAL: B = 300 ±10 mV

[for NTSC]



[for PAL]



7-3-12. CCD Output Level Adjustment

Note:
- **Usually, this adjustment is not required except when the output level of CCD unit is remarkably different from the specified level.**
- **As a replacement CCD unit is precisely adjusted at the factory, it is not necessary to perform this adjustment when the CCD unit had been replaced with new one.**

Light: 3200 K, 2000 lux
(If the designated pattern box is used, set the AUTO mode.)

Object: Grayascale chart

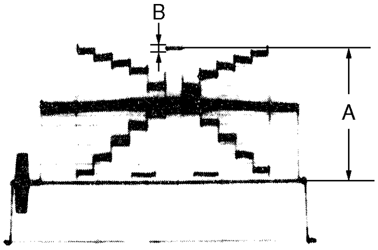
Equipment: Oscilloscope

Preparation:
- OUTPUT/DL/DCC+ switch/camera side → CAM/DCC+
- WHITE BAL switch: PRESET
- Chart frame = Underscanned monitor frame
- FILTER knob: 1 (3200 K)
- Open the VA-178 board.

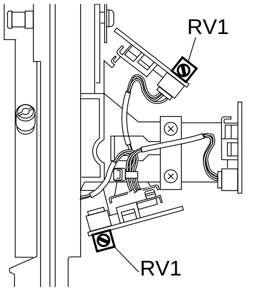
Test point: VIDEO OUT/camera side

Adjustment Procedure

1. Adjust the lens iris so that the white level “A” is as follows:
   for NTSC: A = 90 ±10 IRE
   for PAL: A = 630 ±70 mV
2. Adjust the following controls alternately to minimize the carrier leak “B.”
   ⊘RV1/PA-207 (B) board } Adjust alternately
   ⊘RV1/PA-205 (R) board }



Note: **Set “PAGE 3: PRE.WHT” of ADVANCE menu to 3200.**



7-3-13. Shading Adjustment

Note: **Perform this adjustment when the lens or CCD unit had been replaced.**

Object: White portion of pattern box

Equipment: Waveform monitor, Oscilloscope

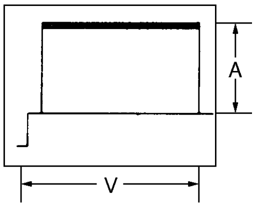
To be extended: VA-178 board

Trigger: VD (TP2/VA-178 board)

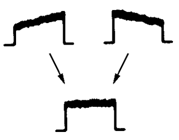
Adjustment Procedure

1. SERVICE menu “PAGE 2”
   → R W.SHAD:
   G W.SHAD:
   B W.SHAD:
2. Shoot the center portion of pattern box by zooming the lens to fully TELE position.
3. Adjust the lens iris so that the level “A” is 70 ±2 IRE (for PAL: 490 ± 14 mV) on the VIDEO OUT connector of camera.

Waveform monitor



4. In the following mode, perform adjustment by turning the MENU dial until the waveform on oscilloscope becomes flat. After adjustment, store the data by pushing the MENU dial.

Mode	Test point (VA-178 board)	Spec.
R W.SHAD	TP102	
G W.SHAD	TP202	
B W.SHAD	TP302	

GND: E2/VA-178 board

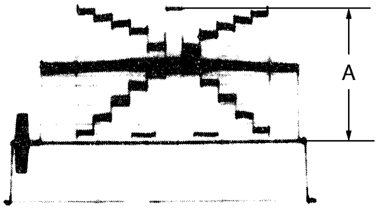
7-3-14. Flare Adjustment

Object: Grayscale chart
Equipment: Waveform monitor

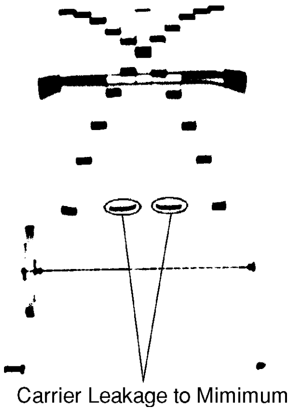
Adjustment Procedure

1. SERVICE menu “PAGE 3”
   → R FLARE: 10
   G FLARE: x
   B FLARE: x
   ✻ Leave R FLARE “10.”

2. Chart frame = Underscanned monitor frame
3. **Test point:** VIDEO OUT connector/camera side
   Adjusting point: Lens iris
   Specification: A = 100 ±2 IRE (for NTSC)
   700 ±10 mV (for PAL)



4. Open the lens iris by two steps.
5. Adjust “G FLARE” and “B FLARE” alternately by turning MENU dial until the carrier leakage level is minimum, then store the data by pushing the MENU dial.

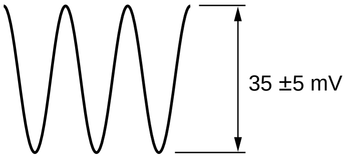


7-3-15. TONE Level Adjustment

Equipment: Oscilloscope
Preparation: OUTPUT/DL/DCC+ switch/camera side → BARS

Adjustment Procedure

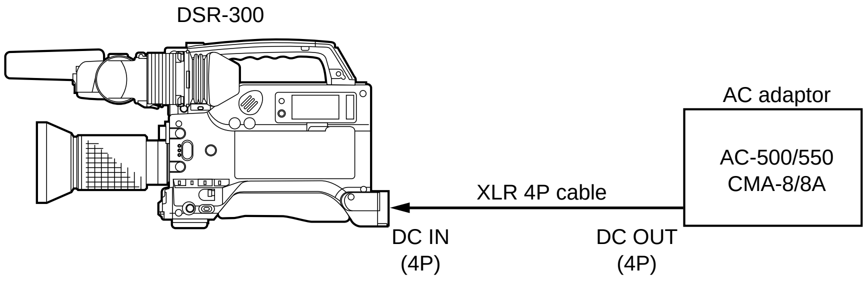
1. Open the AT-117 board.
2. **Test point:** R417 (0 Ω)/FP-98 board
   (GND: E2/FP-98 board)
   Adjusting point: ⊘RV201/AA-92 board



SECTION 8

VTR BLOCK ELECTRICAL ALIGNMENT

SYSTEM CONNECTION


DSR-300
AC adaptor
AC-500/550
CMA-8/8A
XLR 4P cable
DC IN
(4P)
DC OUT
(4P)

SWITCH SETTING

- **SIDE Panel**

EZ MODE: OFF
ATW: OFF
ZEBRA: OFF
GAIN: L
OUTPUT: BARS
W.BAL: PRE
SKIN DTL: OFF
EXT VTR OUTPUT: COMPONENT, VBS
HYPER GAIN: OFF
MATRIX: STD
FRONT MIC LOW CUT: OFF
VTR TRIGGER: INT ONLY
MONITOR SELECT: MIX
TC MODE 1: PRESET
TC MODE 2: F-RUN
MONITOR OUT CHARACTER: OFF
AUDIO SELECT CH-1/CH-2: MAN
AUDIO IN CH-1/CH-2: REAR
DISPLAY: TC

AUDIO LEVEL VR CH-1/CH-2: CCW
MONITOR VR: CCW
ALARM VR: CW

- **REAR Panel**

AUDIO IN CH-1/CH-2: LINE

8-1. SYSTEM CONTROL ADJUSTMEMT

Equipment Required

- Frequency counter (IWATSU SC-7102 or equivalent)
- DC power supply (SONY AC-500/550 or CMA-8/8A)

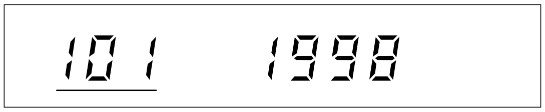
8-1-1. Clock Frequency Adjustment

Equipment: Frequency Counter

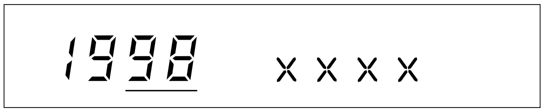
Preparation:
- Input Singal (No signal)
- EE mode

Adjustment Procedure

1. Press the MENU button once.
   The following message is displayed on the LCD screen.
   (In the following description, an underlined part indicates a portion of the display which is blinking.)

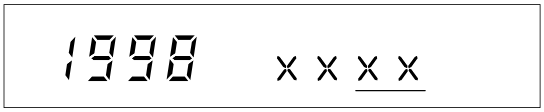


2. Press the SHIFT button once.
   The following message is displayed on the LCD screen.

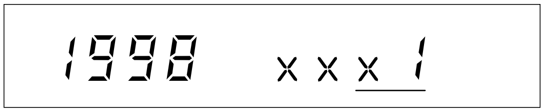


3. Confirm that figure 1 is displayed on the right side.
   When the figure 1 is not displayed, set it to 1 by following the procedure.

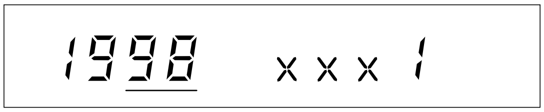
   ① Press the SHIFT button to blink the underlined digits.



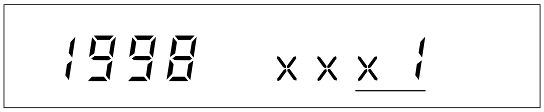
   ② Press the ADVANCE button to set the right side digit to 1.



   ③ Press the SHIFT button seven times.
   The following message is displayed on the LCD screen.

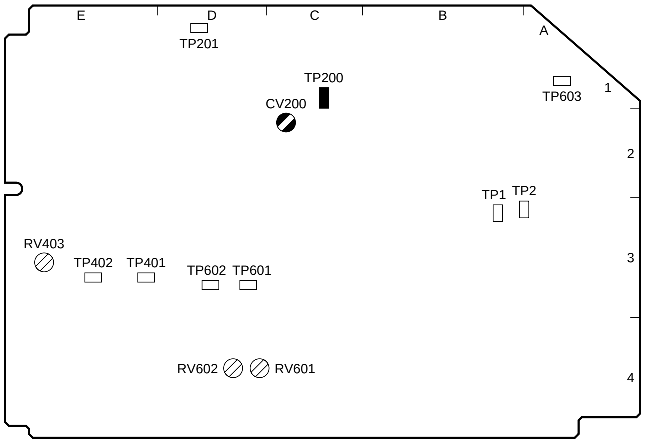


Note: Be sure not to blink the underlined part.



4. Perform the following adjustment:
   Test point: TP201/FP-98 Board (D-1)
   Adjusting point: ⊘CV200/FP-98 Board (C-2)
   Specification: 256.0025 ±0.0005 Hz

5. Press the MENU button, and exit the maintenance menu.


E
D
C
B
A
TP201
TP200
CV200
TP603
1
2
TP1
TP2
RV403
TP402
TP401
TP602
TP601
3
RV602
RV601
4

FP-98 BOARD (B SIDE)

8-2. SERVO SYSTEM ADJUSTMENT

Equipment Required

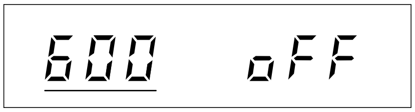
DC power supply (SONY AC-500/550 or CMA-8/8A)

8-2-1. Capstan FG Duty Adjustment

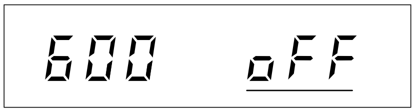
Adjustment Procedure

1. Check that there is no tape in the unit.
2. Close the cassette compartment when it is opened. (It is not necessary to close the cassette compartment if it is removed.)
3. Set the unit in maintenance menu, and select menu No. 601.

(1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)

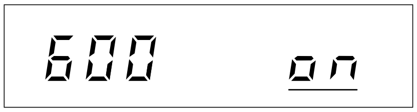


(2) Press the RESET (MENU SET) button once to blink “oFF.”
The following message is displayed on the LCD screen.



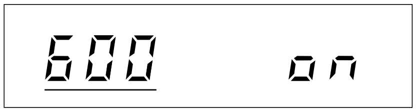
Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will blink alternately.

(3) Press the ADVANCE button once to select “on.”
The following message is displayed on the LCD screen.



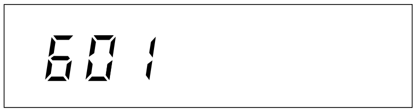
Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

(4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.



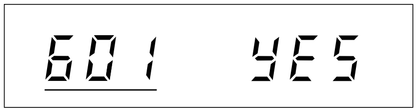
Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

(5) Press the ADVANCE button once to display menu No. 601.
The following message is displayed on the LCD screen.

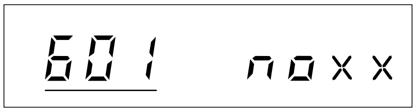


Each time the ADVANCE button is pressed, the menu No. will change as follows:
600 → 601 → 603 → ... 513 → 600 → 601 → ...
Each time the SHIFT button is pressed, the menu No. will change as follows:
600 → 513 → 509 → ... 601 → 600 → 513 → ...

4. Press the RESET (MENU SET) button.
5. Check that the capstan is rotating, and wait for a while (Up to 60 seconds).
6. Check that the following message is displayed on the LCD screen.



When the following message is shown on the LCD screen, exit menu No. 601, and perform step 3 and onwards.
If it is still shown on the LCD screen, check whether the unit is normal or not.



X X: 10→ The capstan does not rotate
11→ The capstan FG (A) cannot be adjusted
12→ The capstan FG (B) cannot be adjusted
E0→ Cannot save data
Fd→ Not supported menu
FE→ Prohibit adjustments (Ex.: Tape is inserted)

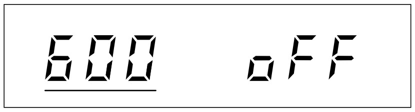
7. Press the MENU button, and exit the maintenance menu.
The state before the maintenance menu indication will be displayed on the LCD screen.

8-2-2. Reel FG Duty Adjustment

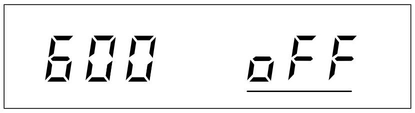
Adjustment Procedure

1. Check that there is no tape in the unit.
2. Close the cassette compartment when it is opened. (It is not necessary to close the cassette compartment if it is removed.)
3. Set the unit in maintenance menu, and select menu No. 607.

(1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)

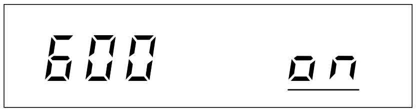

600 oFF

(2) Press the RESET (MENU SET) button once to blink "oFF."
The following message is displayed on the LCD screen.


600 oFF

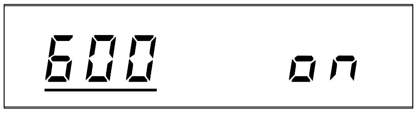
Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

(3) Press the ADVANCE button once to select "on."
The following message is displayed on the LCD screen.


600 on

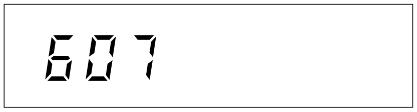
Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

(4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.


600 on

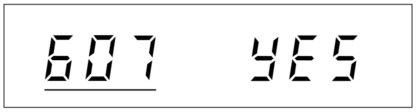
Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

(5) Press the ADVANCE button several times to display menu No. 607.
The following message is displayed on the LCD screen.

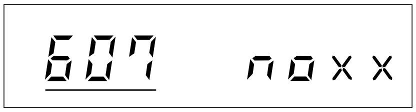

607

Each time the ADVANCE button is pressed, the menu No. will change as follows.
600 → 601 → 603 → ... 513 → 600 → 601 → ...
Each time the SHIFT button is pressed, the menu No. will change as follows.
600 → 513 → 509 → ... 601 → 600 → 513 → ...

4. Press the RESET (MENU SET) button.
5. Check that the capstan is rotating, and wait for a while (Up to 60 seconds).
6. Check that the following message is displayed on the LCD screen.


607 YES

When the following message is shown on the LCD screen, exit menu No. 607, and perform step 3 and onwards.
If it is still shown on the LCD screen, check whether the unit is normal or not.


607 noXX

XX: 20→ The reel motor does not rotate
21→ The reel FG cannot be adjusted
E0→ Cannot save data
Fd→ Not supported menu
FE→ Prohibit adjustments (Ex.: Tape is inserted)

7. Press the MENU button, and exit the maintenance menu.
The state before the maintenance menu indication will be displayed on the LCD screen.

http://getMANUAL.com

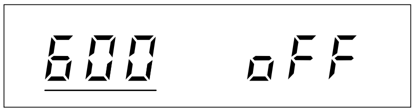
8-3. RF SYSTEM ADJUSTMENT

8-3-1. REC Current Adjustment

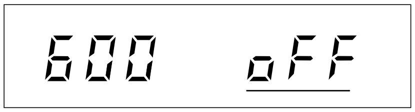
Note: Be sure to perform this adjustment when the RP-91 board is repaired and recording amplifier (IC777) or EEPROM (IC770) on the board is replaced.
Be sure not to perform this adjustment when replacing the RP-91 board.

1. Set the unit in maintenance menu, and select Menu No. 700.

(1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)

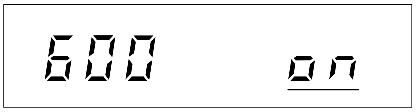


(2) Press the RESET (MENU SET) button once so that “oFF” blinks.
The following message is displayed on the LCD screen.



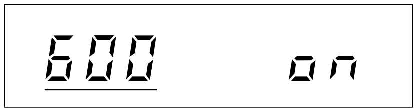
Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will blink alternately.

(3) Press the ADVANCE button once, and select “on.”
The following message is displayed on the LCD screen.



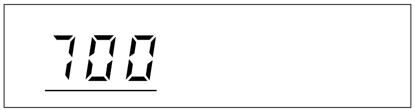
Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

(4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.

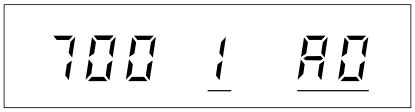


Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

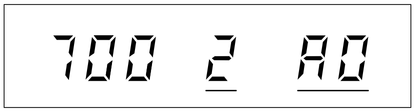
(5) Press the ADVANCE button several times and display Menu No. 700.
The following message is displayed on the LCD screen.



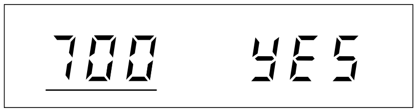
2. Press the RESET (MENU SET) button.
3. Check that the following message is displayed on the LCD screen:



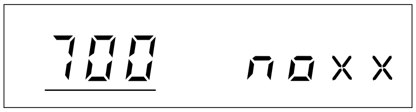
4. Press the RESET (MENU SET) button.
5. Check that the following message is displayed on the LCD screen:



6. Press the RESET (MENU SET) button.
7. Check that the following message is displayed on the LCD screen:



If the following message is displayed on the LCD screen, exit Menu No. 700, and perform from step 1 again.
If the following message is still shown on the LCD screen, check the unit whether normal or not.



X X:E0→ Cannot save data

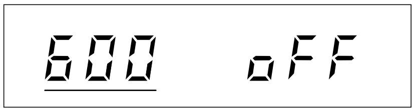
8. Press the MENU button, and exit the maintenance menu.
The state before the maintenance menu indication will be displayed on the LCD screen.

8-3-2. PLL Adjustment

Note: Be sure to perform this adjustment when the RP-91 board is repaired and PLL (IC773) or EEPROM (IC770) on the RP-91 board is replaced.
Be sure not to perform this adjustment when replacing the RP-91 board.

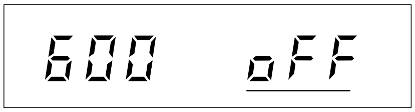
1. Set the unit in the maintenance menu, and select Menu No. 701.

(1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)



600 oFF

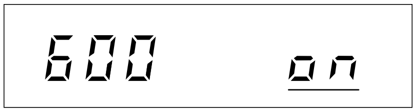
(2) Press the RESET (MENU SET) button once to blink “oFF.”
The following message is displayed on the LCD screen.



600 oFF

Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will blink alternately.

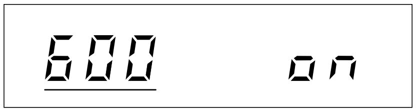
(3) Press the ADVANCE button once, and select “on.”
The following message is displayed on the LCD screen.



600 on

Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

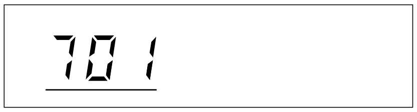
(4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.



600 on

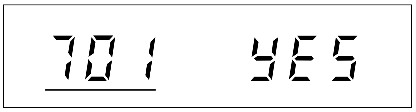
Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

(5) Press the ADVANCE button several times and display Menu No. 701.
The following message is displayed on the LCD screen.



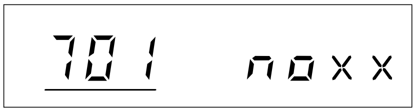
701

2. Press the RESET (MENU SET) button.
3. Load a blank tape, and wait for a while (8 minutes or less).
4. Eject the blank tape.
5. Check that the following message is displayed on the LCD screen:



701 YES

If the following message is displayed on the LCD screen, exit Menu No. 701 and perform from step 1 again.
If the following message is still shown on the LCD screen, check the replaced IC and/or adjacent circuitry.



701 no X X

X X: 42→ Could not record time required for adjustment or check
43→ Could not find starting point of recording
45→ Cannot CLOCK DELAY adjust
50→ Cannot PLL F0 (CH1) adjust
51→ Cannot PLL F0 (CH2) adjust
52→ Cannot PLL XXXXX adjust
E0→ Cannot save data
Fb→ Operation mode changed during adjustment or check. Or could not record
Fc→ Error occurred during adjustment or check
Fd→ Menu not supported
FE→ Adjustment prohibited (Ex.: Tape is inserted)

Note: Because the recording in the special mode is performed during adjustments, the tape used in this adjustment cannot be played back properly.

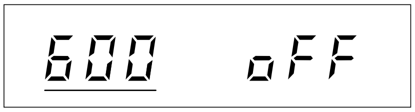
6. Press the MENU button, and exit the maintenance menu.
The state before the maintenance menu indication will be displayed on the LCD screen.

8-3-3. AGC and Delay Adjustment

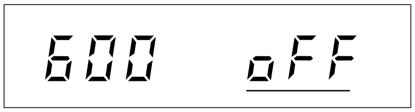
Note: Be sure to perform this adjustment when the RP-91 board is repaired and AEQ (IC775) or EEPROM (IC770) on the RP-91 board is replaced.
Be sure not to perform this adjustment when replacing the RP-91 board.

1. Set the unit in maintenance menu, and select Menu No. 702.

(1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)

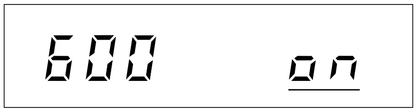


(2) Press the RESET (MENU SET) button once so that “oFF” blinks.
The following message is displayed on the LCD screen.



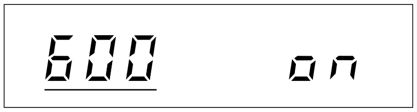
Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will be blink alternately.

(3) Press the ADVANCE button once, and select “on.”
The following message is displayed on the LCD screen.



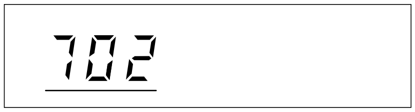
Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

(4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.

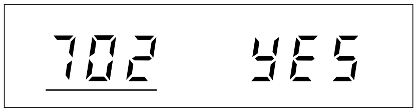


Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

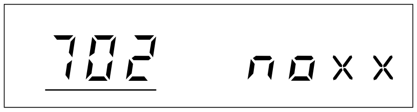
(5) Press the ADVANCE button several times and display Menu No. 702.
The following message is displayed on the LCD screen.



2. Press the RESET (MENU SET) button.
3. Load a blank tape, and wait a while (10 minutes or less).
4. Eject the blank tape.
5. Check that the following message is displayed on the LCD screen:



If the following message is displayed on the LCD screen, exit Menu No. 702 and perform from step 1 again.
If the following message is still shown on the LCD screen, check the replaced IC and/or adjacent circuitry.



X X: 40→ Cannot EQ adjust
41→ Fault detected when error rate was checked after adjustment
42→ Could not record time required for adjustment or check
43→ Could not find starting point of recording
44→ Cannot AGC LEVEL adjust
45→ Cannot CLOCK DELAY adjust
E0→ Cannot save data
Fb→ Operation mode changed during adjustment or check. Or could not record
Fc→ Error occurred during adjustment or check
Fd→ Menu not supported
FE→ Adjustment prohibited (Ex.:Tape is inserted)

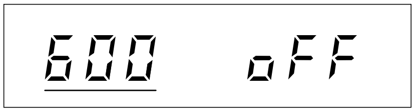
Note: Because the recording in the special mode is performed during adjustments, the tape used in this adjustment cannot be played back properly.

6. Press the MENU button, and exit the maintenance menu.
The state before the maintenance menu indication will be displayed on the LCD screen.

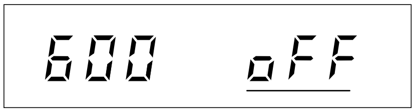
8-3-4. AUTO EQ Adjustment

1. Set the unit in maintenance menu, and select Menu No. 704.

(1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)

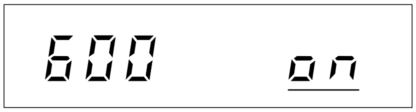


(2) Press the RESET (MENU SET) button once so that "oFF" blinks.
The following message is displayed on the LCD screen.



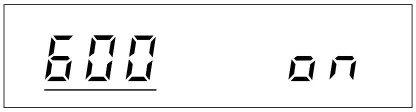
Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

(3) Press the ADVANCE button once, and select "on."
The following message is displayed on the LCD screen.



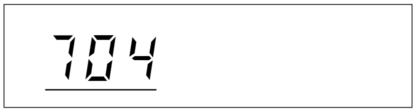
Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

(4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.

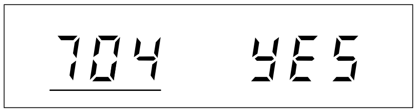


Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

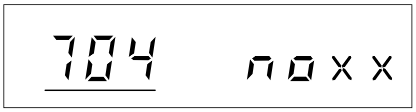
(5) Press the ADVANCE button several time to display Menu No. 704 on the LCD screen.
The following message is displayed on the LCD screen.



2. Press the RESET (MENU SET) button.
3. Load a blank tape, and wait for a while (6 minutes or less).
4. Eject the blank tape.
5. Check that the following message is displayed on the LCD screen:



If the following message is displayed on the LCD screen, exit Menu No. 704 and perform from step 1 again.
If the following message is still shown on the LDC screen, check the unit whether it is normal or not.



X X: 40→ Cannot EQ adjust
41→ Fault detected when error rate was checked after adjustment
42→ Could not record time required for adjustment or check
43→ Could not find starting point of recording.
E0→ Cannot save data
Fb→ Operation mode changed during adjustment or check. Or could not record
Fc→ Error occurred during adjustment or check.
Fd→ Menu not supported
FE→ Adjustment prohibited (Ex.:Tape is inserted)

Note: Because the recording in the special mode is performed during adjustments, the tape used in this adjustment cannot be played back properly.

6. Press the MENU button, and exit the maintenance menu.
The state before the maintenance menu indication will be displayed on the LCD screen.

8-4. AUDIO SYSTEM ADJUSTMENT

Equipment Required

- Audio signal generator (HEWLETT PACKARD HP8904 or equivalent)
- Audio level meter (HEWLETT PACKARD HP3400A or equivalent)
- DC power supply (SONY AC-500/550 or CMA-8/8A)
- Blank tape (SONY DVM30-ME, DVM30-NME or equivalent)
- Alignment tape XH5-1A (SONY Part No. 8-967-999-21: for DSR-300)
- Alignment tape XH5-1AP (SONY Part No. 8-967-999-25: for DSR-300P)

Alignment Tape Contents

XH5-1A (SONY Part No. 8-967-999-21: for DSR-300)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO		
Black burst	23 : 59 : 00	60	No signal		32 kHz 4 ch
75 % full color bars	00 : 00	60	1 kHz		
60 % multi burst	01 : 00	60	20 Hz		
Bowtie with mod 12.5T	02 : 00	30	14.5 kHz		
Shallow ramp	02 : 30	30	10 kHz		
	03 : 00	30	No signal		
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS		
Line 17	04 : 00	40	1 ch	1 kHz	
75 % full color bars	04 : 40	40	2 ch		
Quad phase	05 : 20	40	3 ch		
	06 : 00	40	4 ch		
Black burst	06 : 40	5	No signal		
	06 : 45	5			48 kHz 2 ch
60 % multi burst (for composite)	06 : 50	60	1 kHz		
Mod 12.5T	07 : 50	30	20 Hz		
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz		
	08 : 50	30	10 kHz		
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS		
Chroma noise	09 : 50	30	1 kHz		
Line 17	10 : 20	30			
75 % full color bars	10 : 50	180			
60 % multi burst	13 : 50	60			
Mod 12.5T	14 : 50	30			
Shallow ramp	15 : 20	60			
75 % full color bars	16 : 20	100			
75 % full color bars (R-Y OFF)	18 : 00	180			
75 % full color bars (B-Y OFF)	21 : 00	180			
Blanking marker	24 : 00	180			
Line 17 (R-Y OFF)	27 : 00	180			
Line 17 (B-Y OFF)	30 : 00	180			

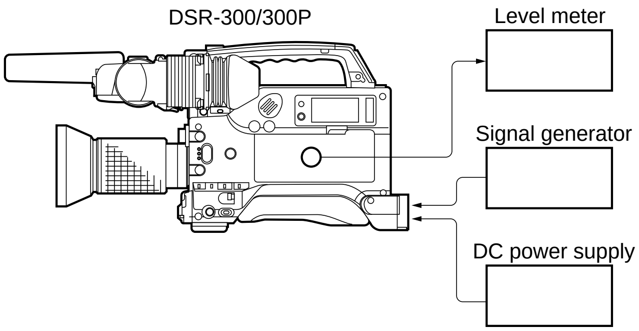
∗ Audio levels are −20 dBFS (Reference), except 1 kHz 0 dBFS part.

XH5-1AP (Sony Part No. 8-967-999-25: for DSR-300P)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO		
Black burst	23 : 59 : 00	60	No signal		32 kHz 4 ch
100 % full color bars	00 : 00	60	1 kHz		
60 % multi burst	01 : 00	60	20 Hz		
Bowtie with mod 10T	02 : 00	30	14.5 kHz		
Shallow ramp	02 : 30	30	10 kHz		
	03 : 00	30	No signal		
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS		
Line 17	04 : 00	40	1 ch	1 kHz	
100 % full color bars	04 : 40	40	2 ch		
Quad phase	05 : 20	40	3 ch		
	06 : 00	40	4 ch		
Black burst	06 : 40	5	No signal		
	06 : 45	5			48 kHz 2 ch
60 % multi burst (for composite)	06 : 50	60	1 kHz		
Mod 10T	07 : 50	30	20 Hz		
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz		
	08 : 50	30	10 kHz		
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS		
Chroma noise	09 : 50	30	1 kHz		
Line 17	10 : 20	30			
100 % full color bars	10 : 50	180			
60 % multi burst	13 : 50	60			
Mod 10T	14 : 50	30			
Shallow ramp	15 : 20	60			
100 % full color bars	16 : 20	100			
100 % full color bars (R-Y OFF)	18 : 00	180			
100 % full color bars (B-Y OFF)	21 : 00	180			
Blanking marker	24 : 00	180			
Line 17 (R-Y OFF)	27 : 00	180			
Line 17 (B-Y OFF)	30 : 00	180			

∗ Audio levels are −18 dBFS (Reference), except 1 kHz 0 dBFS part.

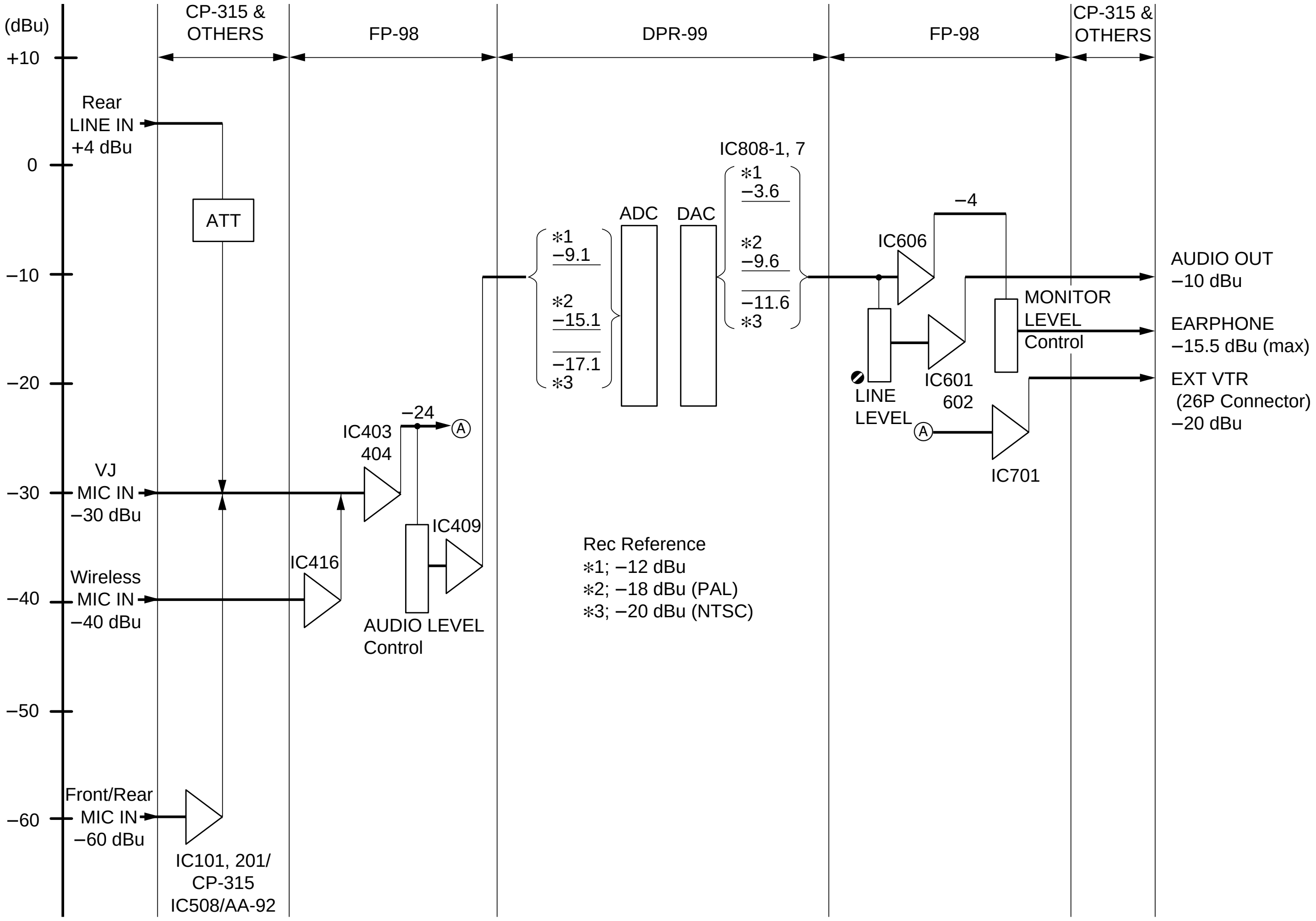
System Connection



Precautions for Adjustments

- The alignment tape is used within the limits about 50 times. It is recommended that it be marked for reference.
- 0 dBu = 0.775 Vrms

Level Diagram


(dBu)
+10
0
−10
−20
−30
−40
−50
−60
CP-315 & OTHERS
FP-98
DPR-99
FP-98
CP-315 & OTHERS
Rear LINE IN +4 dBu
ATT
VJ MIC IN −30 dBu
Wireless MIC IN −40 dBu
Front/Rear MIC IN −60 dBu
IC101, 201/ CP-315 IC508/AA-92
IC416
IC403 404
−24
Ⓐ
IC409
AUDIO LEVEL Control
*1 −9.1
*2 −15.1
−17.1 *3
ADC
DAC
IC808-1, 7
*1 −3.6
*2 −9.6
−11.6 *3
IC606
−4
IC601 602
LINE LEVEL
Ⓐ
IC701
MONITOR LEVEL Control
AUDIO OUT −10 dBu
EARPHONE −15.5 dBu (max)
EXT VTR (26P Connector) −20 dBu
Rec Reference
*1; −12 dBu
*2; −18 dBu (PAL)
*3; −20 dBu (NTSC)

8-4-1. Audio Level Volume Reference Position Adjustment

Equipment: Audio level meter
Audio signal generator

Preparations:
- AUDIO INPUT CH-1/CH-2: 1 kHz, +4.0 dBu
- EE mode

Test point: CH-1: TP401/FP-98 board (E-3)
CH-2: TP402/FP-98 board (E-3)

Adjusting point: CH-1 AUDIO LEVEL adjustment control
⊘RV401/FP-98 board
CH-2 AUDIO LEVEL adjustment control
⊘RV402/FP-98 board

Specification: −10.3 ±0.2 dBu

8-4-2. Monitor Output (LINE OUT) Level Adjustment

Equipment: Audio level meter
Audio signal generator

Preparations:
- AUDIO INPUT CH-1/CH-2: 1 kHz, +4.0 dBu
- Terminate the following monitor outputs with 47 kΩ resistors.
  CH-1: TP601/FP-98 board
  CH-2: TP602/FP-98 board
- EE mode

Test point: CH-1: TP601/FP-98 board (D-3)
CH-2: TP602/FP-98 board (D-3)

Adjusting point: CH-1: ⊘RV601/FP-98 board (D-4)
CH-2: ⊘RV602/FP-98 board (D-4)

Specification: −10.0 ±0.5 dBu

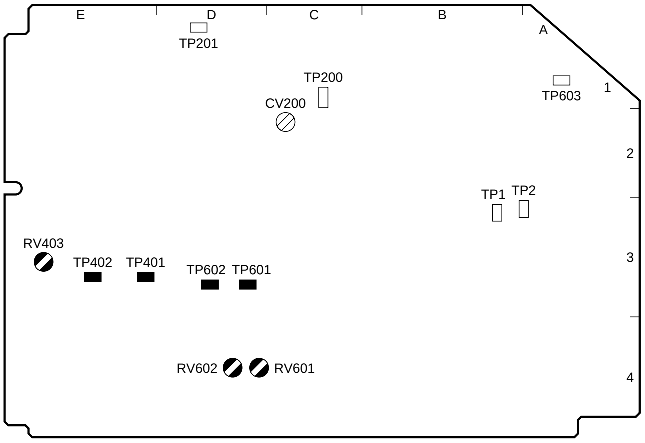
8-4-3. Limiter Level Adjustment

Equipment: Audio level meter
Audio signal generator

Preparations:
- AUDIO SELECT SW CH-1: AUTO
- AUDIO SELECT SW CH-2: AUTO
- [REAR PANEL] CH-1: LINE or MIC
- [REAR PANEL] CH-2: LINE or MIC
- EE mode

Adjusting procedure

1. Input the +20 dB signal (for reference signal) to AUDIO INPUT CH-1/CH-2.
   LINE: 1 kHz, +24 dBu
   (Reference signal; 1 kHz, +4 dBu)
   MIC: 1 kHz, −40 dBu
   (Reference signal; 1 kHz, −60 dBu)
2. Adjust the level within the specification.
   Test point: TP401/FP-98 board (E-3)
   Adjusting point: ⊘RV403/FP-98 board (E-3)
   Specification: −8.3 ±0.2 dBu



FP-98 BOARD (B SIDE)

8-5. VIDEO SYSTEM ADJUSTMENT

Equipment Required

- Oscilloscope (Tektronix 2445B/200 MHz or equivalent)
- DC power supply (Sony AC-500/550 or CMA-8/8A)
- Alignment tape XH5-1A (DSR-300: Sony Part No. 8-967-999-21)
- Alignment tape XH5-1AP (DSR-300P: Sony Part No. 8-967-999-25)
- S-BNC video cable (Sony Part No. J-6381-380-A)

Precautions for Adjustments

- The alignment tape can roughly be used for 50 times. It is recommended that it be marked for reference.
- Terminate at 75 Ω when measuring S-VIDEO OUT and MONITOR OUT.

Alignment Tape Contents

DSR-300: XH5-1A (SONY Part No. 8-967-999-21)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO		
Black burst	23 : 59 : 00	60	No signal		32 kHz 4 ch
75 % full color bars	00 : 00	60	1 kHz		
60 % multi burst	01 : 00	60	20 Hz		
Bowtie with mod 12.5T	02 : 00	30	14.5 kHz		
Shallow ramp	02 : 30	30	10 kHz		
	03 : 00	30	No signal		
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS		
Line 17	04 : 00	40	1 ch	1 kHz	
75 % full color bars	04 : 40	40	2 ch		
Quad phase	05 : 20	40	3 ch		
	06 : 00	40	4 ch		
Black burst	06 : 40	5	No signal		
	06 : 45	5			48 kHz 2 ch
60 % multi burst (for composite)	06 : 50	60	1 kHz		
Mod 12.5T	07 : 50	30	20 Hz		
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz		
	08 : 50	30	10 kHz		
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS		
Chroma noise	09 : 50	30	1 kHz		
Line 17	10 : 20	30			
75 % full color bars	10 : 50	180			
60 % multi burst	13 : 50	60			
Mod 12.5T	14 : 50	30			
Shallow ramp	15 : 20	60			
75 % full color bars	16 : 20	100			
75 % full color bars (R-Y OFF)	18 : 00	180			
75 % full color bars (B-Y OFF)	21 : 00	180			
Blanking marker	24 : 00	180			
Line 17 (R-Y OFF)	27 : 00	180			
Line 17 (B-Y OFF)	30 : 00	180			

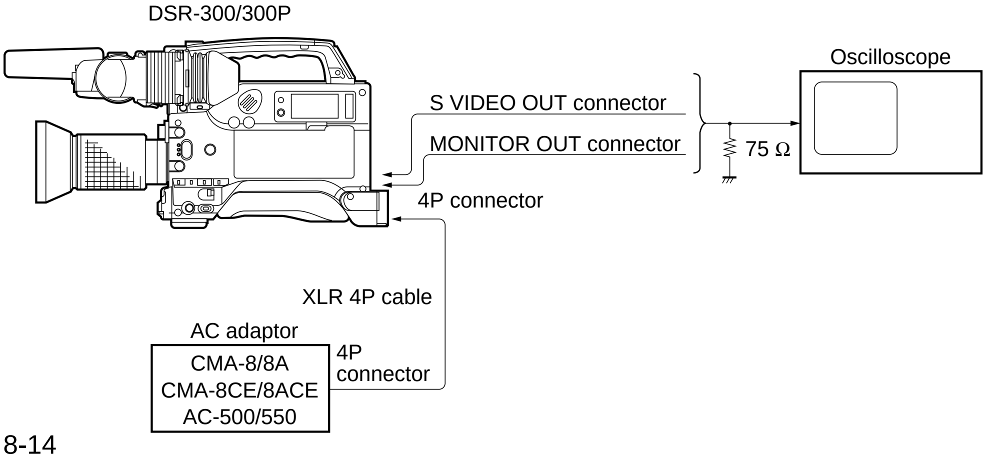
∗ Audio levels are −20 dBFS (Reference), except 1 kHz 0 dBFS part.

DSR-300P: XH5-1AP (SONY Part No. 8-967-999-25)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO		
Black burst	23 : 59 : 00	60	No signal		32 kHz 4 ch
100 % full color bars	00 : 00	60	1 kHz		
60 % multi burst	01 : 00	60	20 Hz		
Bowtie with mod 10T	02 : 00	30	14.5 kHz		
Shallow ramp	02 : 30	30	10 kHz		
	03 : 00	30	No signal		
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS		
Line 17	04 : 00	40	1 ch	1 kHz	
100 % full color bars	04 : 40	40	2 ch		
Quad phase	05 : 20	40	3 ch		
	06 : 00	40	4 ch		
Black burst	06 : 40	5	No signal		
	06 : 45	5			48 kHz 2 ch
60 % multi burst (for composite)	06 : 50	60	1 kHz		
Mod 10T	07 : 50	30	20 Hz		
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz		
	08 : 50	30	10 kHz		
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS		
Chroma noise	09 : 50	30	1 kHz		
Line 17	10 : 20	30			
100 % full color bars	10 : 50	180			
60 % multi burst	13 : 50	60			
Mod 10T	14 : 50	30			
Shallow ramp	15 : 20	60			
100 % full color bars	16 : 20	100			
100 % full color bars (R-Y OFF)	18 : 00	180			
100 % full color bars (B-Y OFF)	21 : 00	180			
Blanking marker	24 : 00	180			
Line 17 (R-Y OFF)	27 : 00	180			
Line 17 (B-Y OFF)	30 : 00	180			

∗ Audio levels are −18 dBFS (Reference), except 1 kHz 0 dBFS part.

System Connection


DSR-300/300P
Oscilloscope
S VIDEO OUT connector
MONITOR OUT connector
75 Ω
4P connector
XLR 4P cable
AC adaptor
CMA-8/8A
CMA-8CE/8ACE
AC-500/550
4P
connector

http://getMANUAL.com

Maintenance Menu Settings

1. Press the MENU button while pressing the SHIFT button, and release the SHIFT button while pressing the MENU button. Check that “600_oFF” is displayed on the LCD screen after about 1 second, and then release the MENU button.
2. Press the RESET button to blink “oFF,” and press the ADVANCE button to display “on.”
3. Press the RESET button to blink “600” to enable the maintenance menu, and press the ADVANCE button to display “660.”
4. Press the RESET button to check the display so that it is “660_tAdj.”

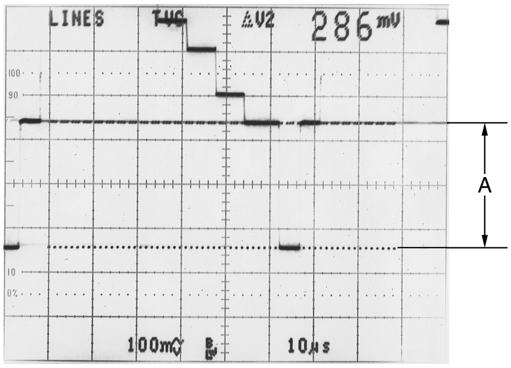
8-5-1. PB Y SYNC Level Adjustment

MENU No.: PAGE 10 VTR SYNC
Measuring point: S-VIDEO (Y) OUT
VTR MODE: PB
Tape: 75 % Full Color bars/XH5-1A
100 % Full Color bars/XH5-1AP
Specification: DSR-300: A = 286 ±4 mV
DSR-300P: A = 300 ±4 mV

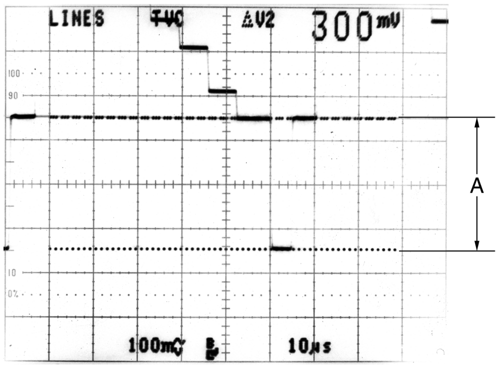
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



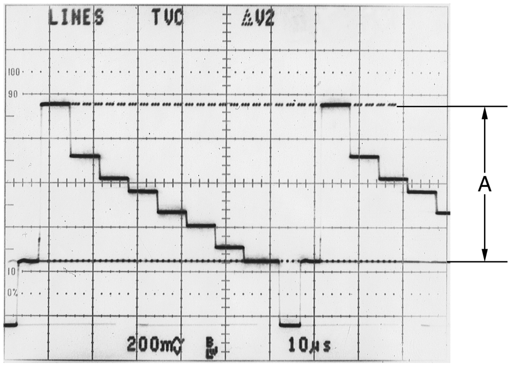
8-5-2. PB Y Level Adjustment

MENU No.: PAGE 9 VTR Y
Measuring point: S-VIDEO (Y) OUT
VTR MODE: PB
Tape: 75 % Full Color bars/XH5-1A
100 % Full Color bars/XH5-1AP
Specification: Y LEVEL
DSR-300: A = 714 ± 5 mV
DSR-300P: A = 700 ± 5 mV

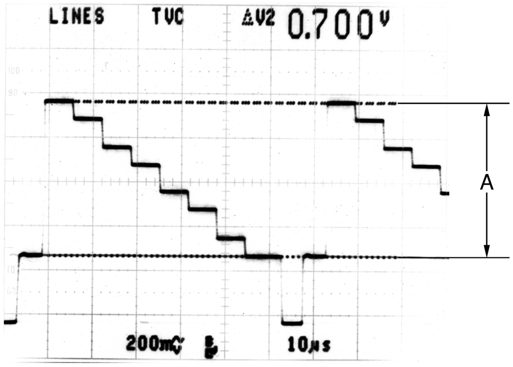
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



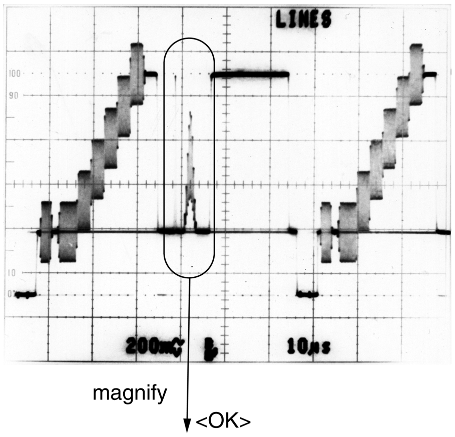
8-5-3. PB Y/B-Y Delay Adjustment

For DSR-300

MENU No.: PAGE 9 B-Y DELAY
Measuring point: MONITOR OUT
VTR MODE: PB
Tape: Line 17 (R-Y off)/XH5-1A
Specification: Adjust the envelope so that it is symmetrical on the left and right sides.

Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.



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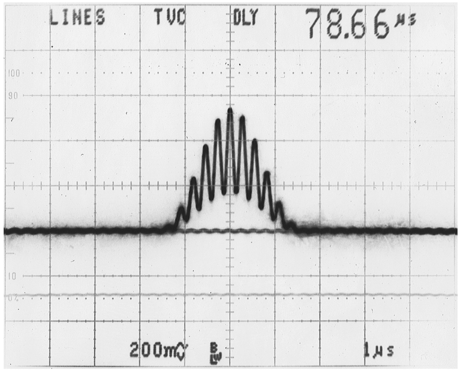

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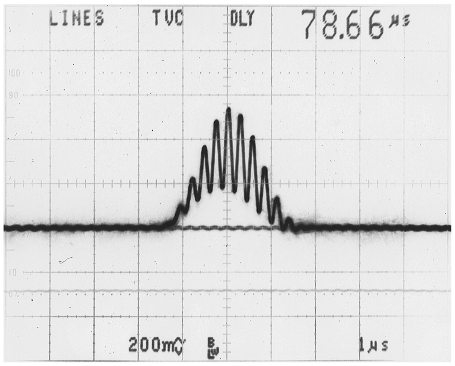

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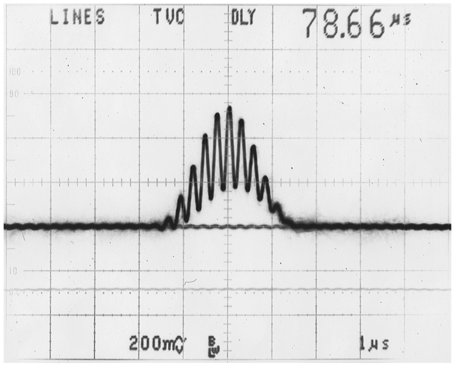
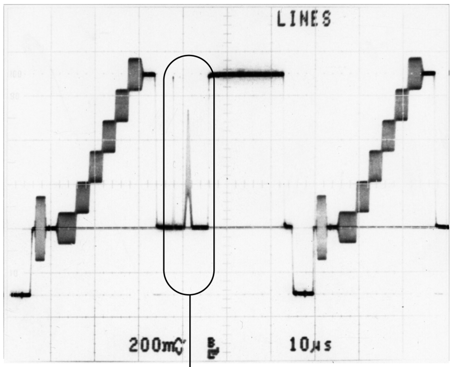


For DSR-300P

MENU No.: PGAE 9 B-Y DELAY
Measuring point: MONITOR OUT
VTR MODE: PB
Tape: Line 17 (R-Y off)/XH5-1AP
Specification: Adjust the envelope so that it is symmetrical on the left and right sides.

Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.



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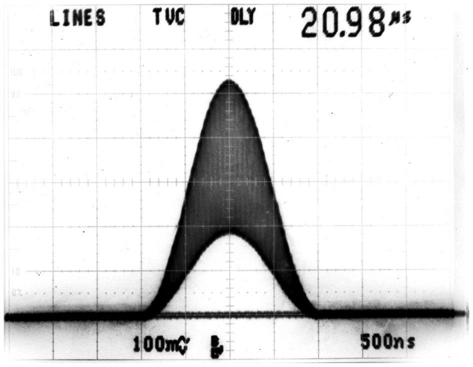

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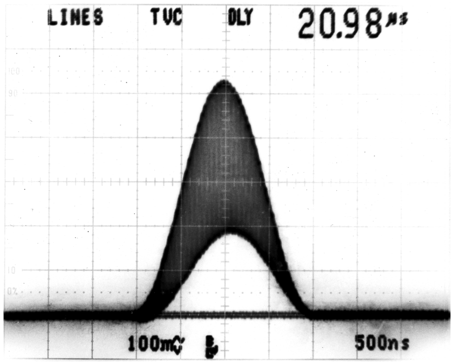

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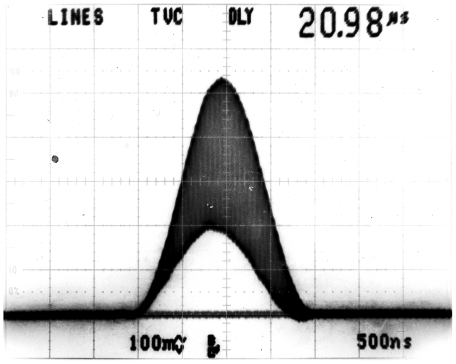


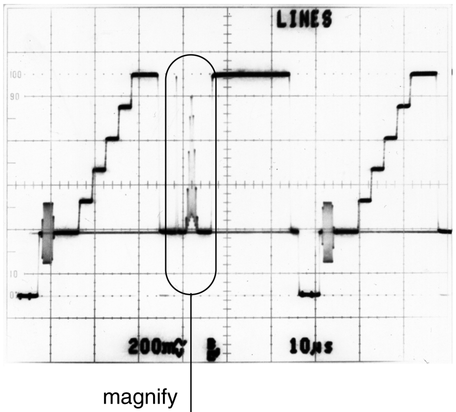
8-5-4. PB Y/R-Y Delay Adjustment

For DSR-300

MENU No.:	PAGE 9 R-Y DELAY
Measuring point:	MONITOR OUT
VTR MODE:	PB
Tape:	Line 17 (B-Y off)/XH5-1A
Specification:	Adjust the envelope so that it is symmetrical on the left and right sides.

Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.



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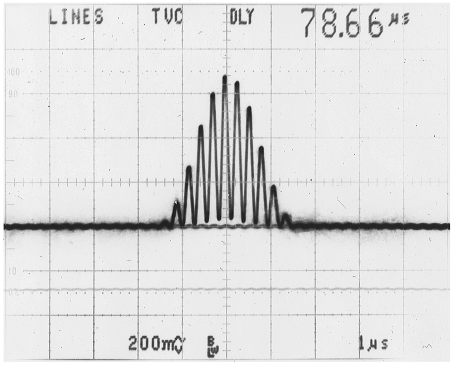

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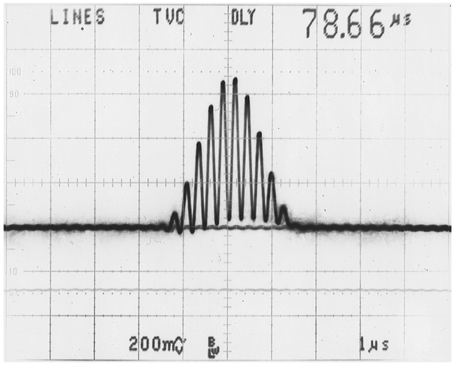

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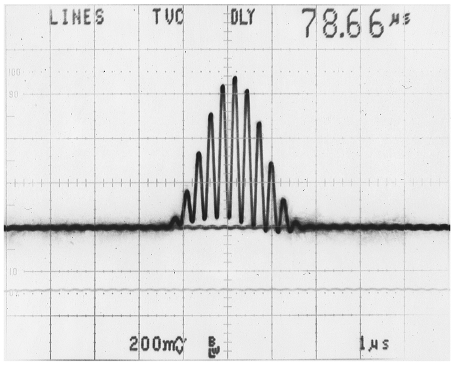
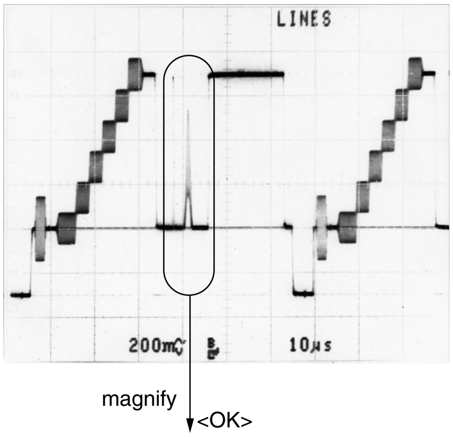


For DSR-300P

MENU No.: PAGE 9 R-Y DELAY
Measuring point: MONITOR OUT
VTR MODE: PB
Tape: Line 17 (B-Y off)/XH5-1AP
Specification: Adjust the envelope so that it is symmetrical on the left and right sides.

Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.



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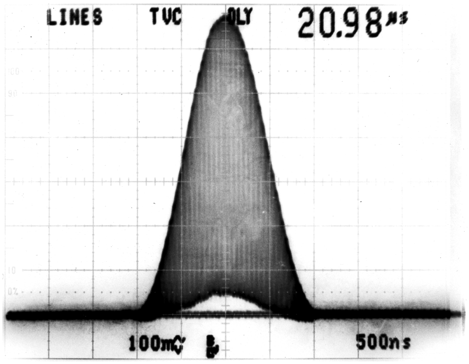

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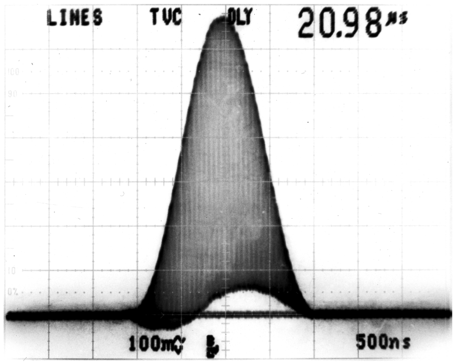

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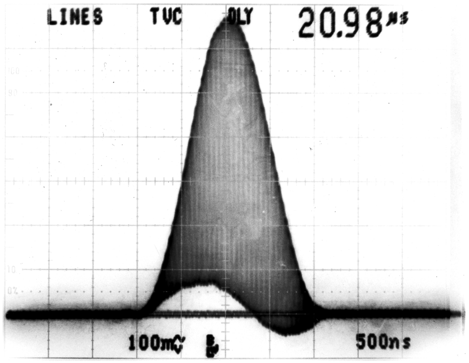


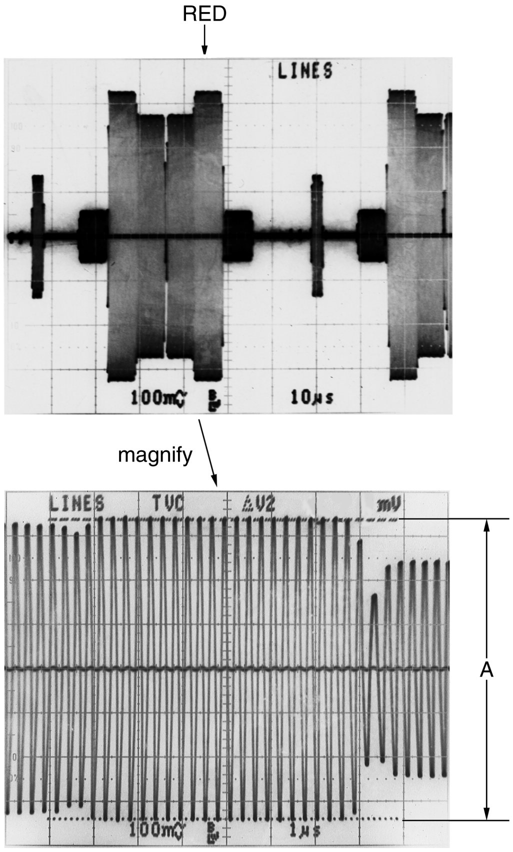
8-5-5. PB R-Y Level Adjustment

MENU No.: PAGE 9 VTR R-Y
Measuring point: S-VIDEO (C) OUT
VTR MODE: PB
Tape: 75 % Full Color bars (B-Y off)/
XH5-1A
100 % Full Color bars (B-Y off)/
XH5-1AP
Specification: Chroma (red) level
DSR-300: A = 659 ±5 mV
DSR-300P: A = 885 ±5 mV

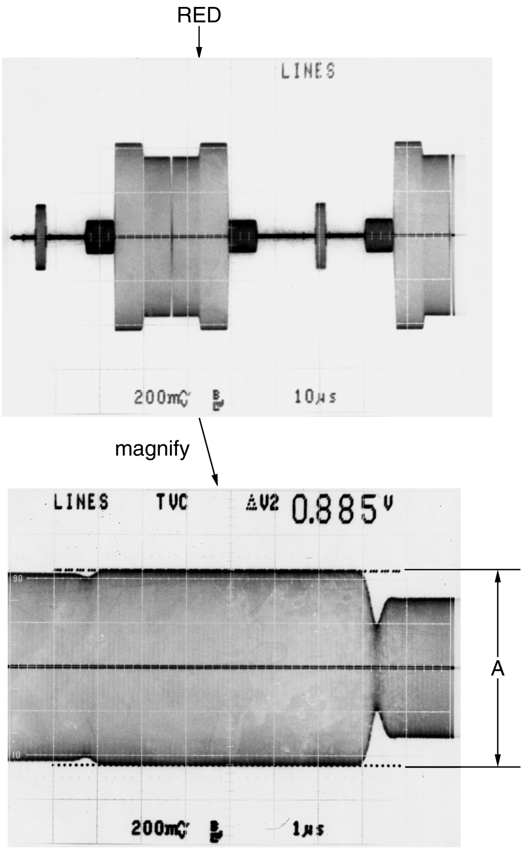
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



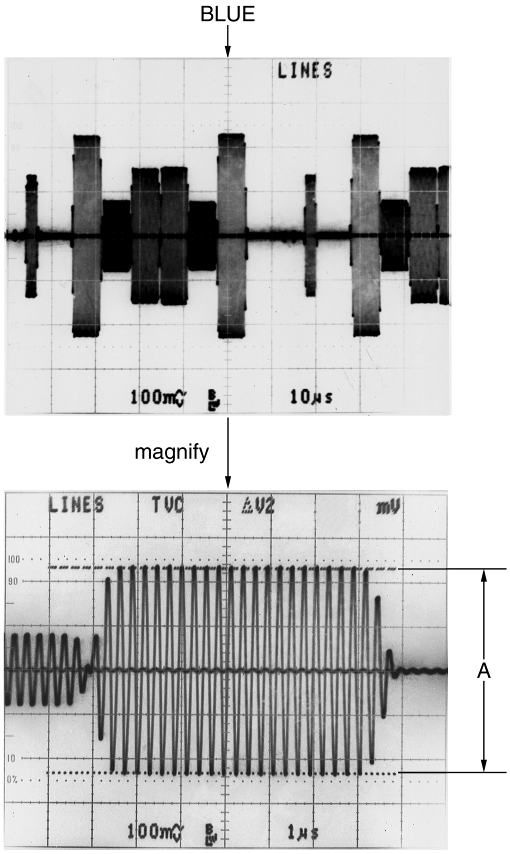
8-5-6. PB B-Y Level Adjustment

MENU No.: PAGE 9 VTR B-Y
Measuring point: S-VIDEO (C) OUT
VTR MODE: PB
Tape: 75 % Full Color bars (R-Y off)/
XH5-1A
100 % Full Color bars (R-Y off)/
XH5-1AP
Specification: Chroma (blue) level
DSR-300: A = 468 ± 5 mV
DSR-300P: A = 612 ± 5 mV

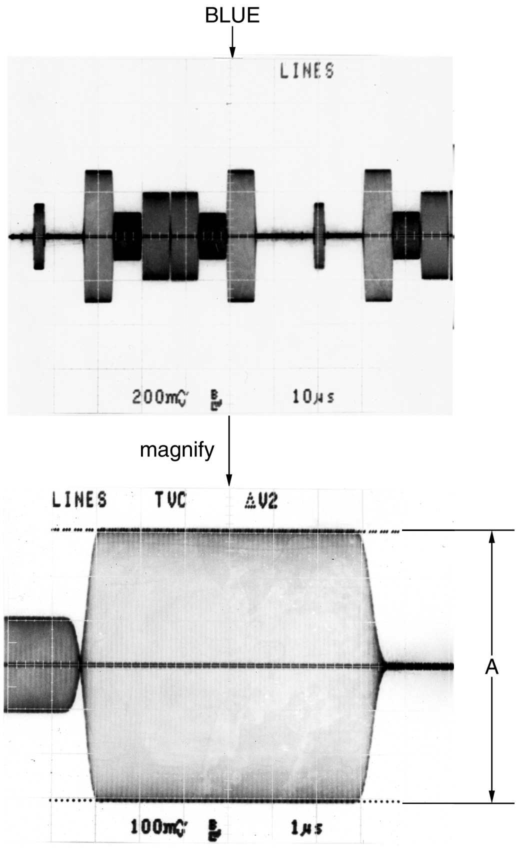
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



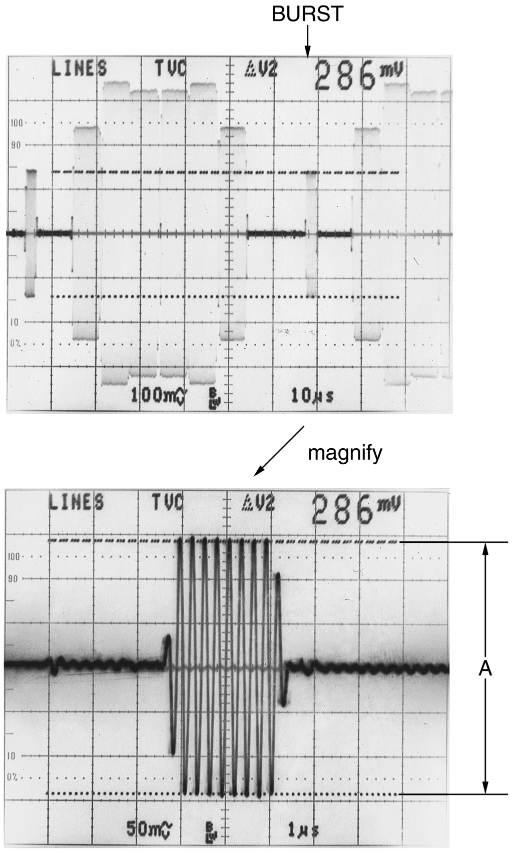
8-5-7. PB Burst Level Adjustment

MENU No.: PAGE 10 VTR BST
Measuring point: S-VIDEO (C) OUT
VTR MODE: PB
Tape: 75 % Full Color bars/XH5-1A
100 % Full Color bars/XH5-1AP
Specification: DSR-300: A = 286 ±3 mV
DSR-300P: A = 300 ±3 mV

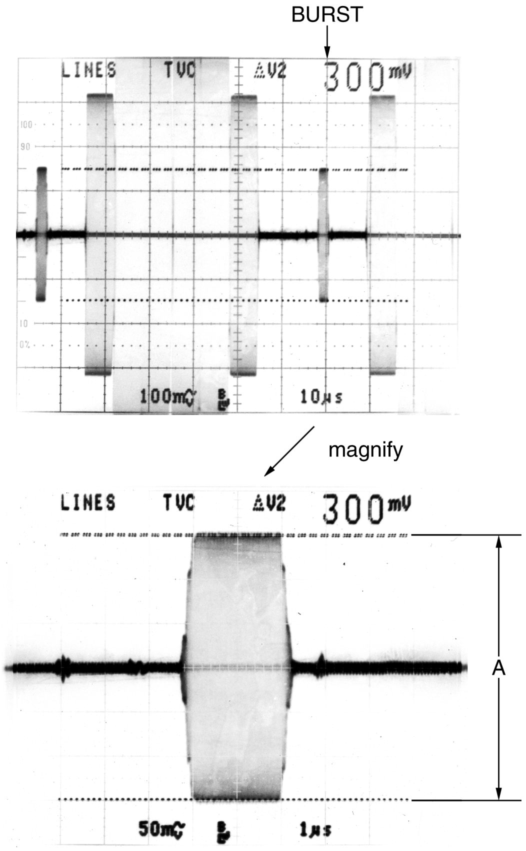
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



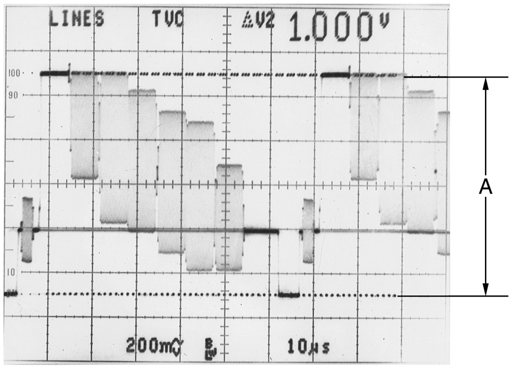
8-5-8. PB VBS Y Level Adjustment

MENU No.: PAGE 10 PB VBS
Measuring point: MONITOR OUT
VTR MODE: PB
Tape: 75 % Full Color bars/XH5-1A
100 % Full Color bars/XH5-1AP
Specification: A = 1.00 ±0.01 V

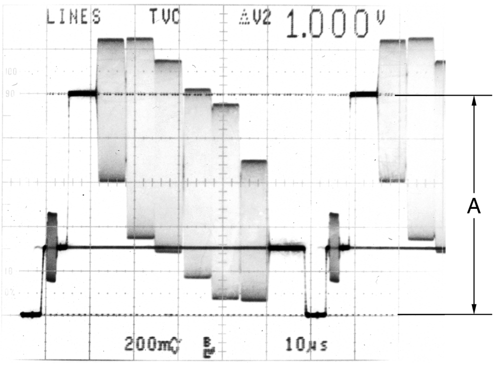
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



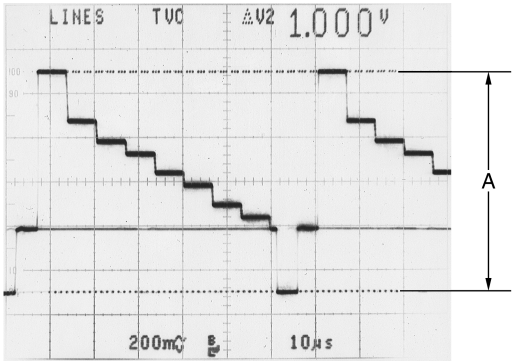
8-5-9. EE Y Level Adjustment

Input signal: Internal Color bars
MENU No.: PAGE 10 EE S-Y
Measuring point: S-VIDEO (Y) OUT
VTR MODE: EE
Tape: Not required.
Tape: A = 1.00 ±0.01 V

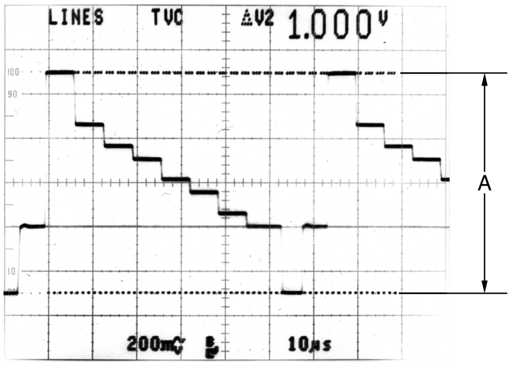
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



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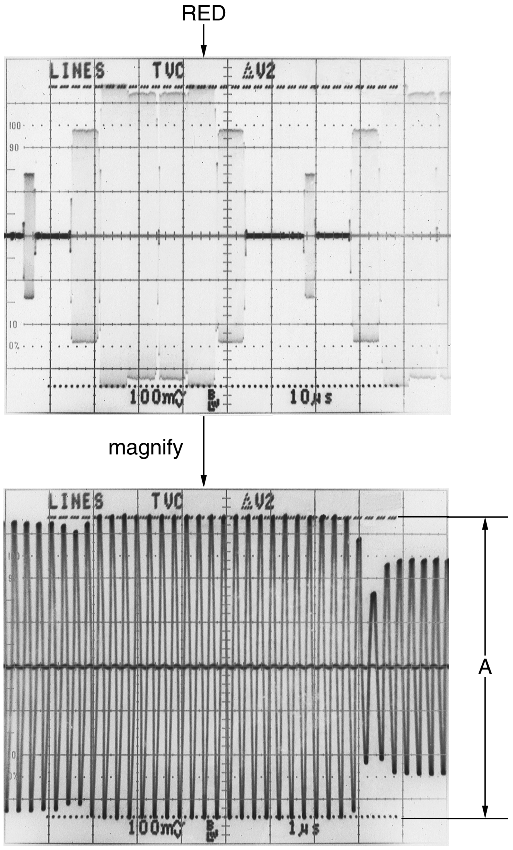
8-5-10. EE Chroma Level Adjustment

Input signal: Internal color bars
MENU No.: PAGE 10 EE S-C
Measuring point: S-VIDEO (C) OUT
VTR MODE: EE
Tape: Not required.
Specification: DSR-300: A = 627 ±5 mVp-p
DSR-300P: A = 664 ±5 mVp-p

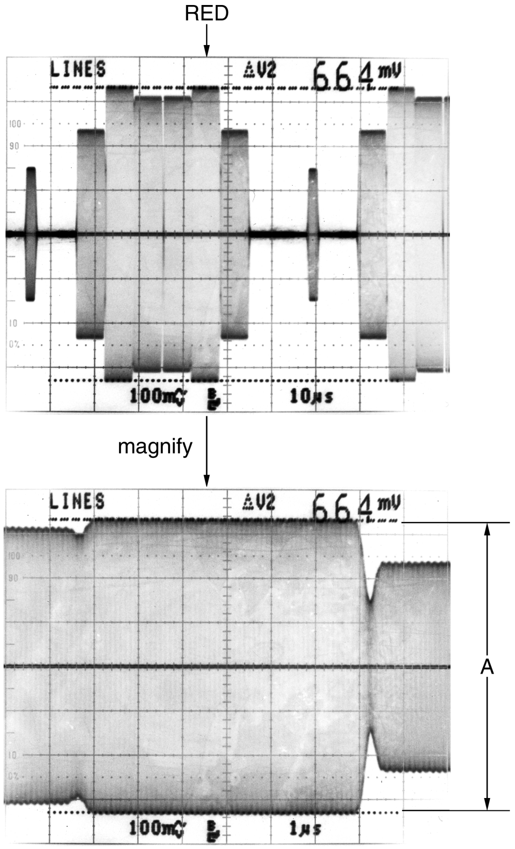
Adjustment Procedure

Perform adjustment by turning the MENU dial, and store the data by pushing the MENU dial.

For DSR-300



For DSR-300P



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